Remembering David Tudor:
A 75th Anniversary Memoir

by Lowell Cross

[Online-Einrichtung: Clemens Gresser, Wolfgang Krebs]

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Vorbemerkungen:

(Übersetzung aus dem Englischen von Clemens Gresser)

David Eugene Tudor wurde am 20. Januar 1926 in Philadelphia geboren und starb in seinem Haus in Tomkins Cove, New York am 13. August 1996. Im Jahre 2001 — dem 75. Geburtstag — ist es angebracht, daß wir uns an Aspekte seines Musikschaffens, seines Engagements für sein Werk, seiner Reisen und der weitreichenden Manifestationen seiner komplexen Persönlichkeit erinnern.

Die folgenden Lebenserinnerungen dokumentieren bestimmte Ereignisse in den Biographien von David Tudor (1926-1996), John Cage (1912-1992), Carson D. Jeffries (1922-1995) und Lowell Cross (geb. 1938) von 1963 bis 1980.

David Tudor war der führende Pianist der Avantgarde in der zweiten Hälfte des 20. Jahrhunderts, obwohl er ab Mitte der 1960er Jahre seine pianistischen Aktivitäten stark einschränkte, um sich auf die Komposition und Aufführung elektronischer Musik zu konzentrieren. Er beteiligte sich an der von Lowell Cross und Carson D. Jeffries initiierten Entwicklung musikgenerierter Video- und Laserkunst; unter anderem arbeitete Tudor an der Präsentation der ersten Laser-Show mit.

John Cage war einer der einflußreichsten Komponisten und Intellektuellen des 20. Jahrhunderts. Er war ein Pionier innerhalb der Perkussionsmusik, mit seiner Erfindung des "präparierten Klaviers", innerhalb der "Tonband-" und "Liveelektronischen Musik" und besonders in seiner Verwendung von Zufallsoperationen ("indeterminacy"/"Indetermination"). Diese verwendete

Cage, um seine Persönlichkeit von seiner Kunst zu trennen. In seinem späteren Leben komponierte er acrostics und andere "Text-Stücke", spielte Schach mit Marcel Duchamp und beschäftigte sich mit der Produktion von Werken der Bildenden Kunst.

Carson D. Jeffries war ein international berühmter Physiker an der University of California, Berkeley. Seine ersten Fotografien von Elektronen in flüssig-tropfender Form in hoch-gekühlter Struktur ("Electricity photographed in its purest form", 1972) wurden in den Abendnachrichten des NBC-TV-Senders und auf der Titelseite der Zeitschrift *Science* gezeigt. Professor Jeffries war auch ein begabter und innovativer Schöpfer kinetischer Skulpturen. Er baute alle seine Werke mit seinen eigenen Händen und beaufsichtigte deren Ausstellungen, und Durchführungen an der Universität von Berkeley, am Mills College und an anderen Orten in der Bucht von San Francisco.

Informationen zu Lowell Cross finden sich im folgenden Text bzw. an dessen Ende.

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Remembering David Tudor:
A 75th Anniversary Memoir

Text

by Lowell Cross

"It's hard to do a piece any more that lasts for less than an hour."
David Tudor, Iowa City, Iowa, 16 October 1974

David Eugene Tudor was born in Philadelphia on 20 January 1926 and died at his home in Tomkins Cove, New York on 13 August 1996. In 2001 — the 75th anniversary of his birth — it is appropriate for us to recall aspects of his music-making, his commitment to his own work, his far-flung travels, and the wide-ranging manifestations of his complex personality.

This memoir documents certain events in the lives of David Tudor (1926-1996), John Cage (1912-1992), Carson D. Jeffries (1922-1995), and Lowell Cross (1938-) from 1963 to 1980.

David Tudor was the leading avant-garde pianist of the second half of the 20th Century, even though he greatly limited his pianistic activities after the mid-1960s to concentrate on electronic music composition and performance. He joined Lowell Cross and Carson D. Jeffries in the development of video and laser art forms generated by music, including the presentation of the first laser light shows.

John Cage was one of the most influential composers and intellectuals of the 20th Century. He was a pioneer in percussion music, in his invention of the "prepared piano," in "tape" and "live electronic" musics, and especially, in his use of chance operations ("indeterminacy") to separate his personality from his art. Later in his life he composed acrostics and other text-pieces, played chess with Marcel Duchamp, and engaged in the production of visual works.

Carson D. Jeffries was an internationally renowned physicist at the University of California, Berkeley. His highly acclaimed first photographs of electrons in the form of a liquid droplet inside a supercooled crystal wafer ("Electricity

photographed in its purest form," 1972) were featured on the NBC-TV Evening News and on the cover of *Science*. Professor Jeffries was also a gifted and innovative kinetic sculptor. He built all of his artistic works with his own hands and oversaw their exhibition and performance on the Berkeley campus, at Mills College, and elsewhere in the San Francisco Bay Area.

Information about Lowell Cross may be found within the following text and at the end of this article.

Encounters in Texas, 1963-1964

I first heard, and saw, David Tudor in action on Monday, 11 November 1963 at a 4:00 p.m. concert in the Recital Hall of the University of Texas, Austin, but I did not meet him at that time. We can place that event in historical and geographical perspective by remembering that President John F. Kennedy was assassinated in Dallas eleven days later. John Cage and David Tudor performed Toshi Ichiyanagi's *Music for Piano No. 4*, George Brecht's *Incidental Music*, and John Cage's *Variations II and III*. I did meet John Cage after the concert, and I asked him to autograph my copy of *Silence*. He obliged by inscribing it

(after 400 miles) gratitude
John Cage

and handed it back to me with a big smile on his face. I was in my last year as a music major at Texas Technological College in Lubbock (now Texas Tech University) and had driven the 400 miles to Austin to attend the concert. I had installed my own modest electronic music studio on the Texas Tech campus in 1961, and by 1963 I had become quite interested in the activities of the musical avant-garde.

The Austin concert made a lasting impression on me — I had never experienced anything like it. There were unusual sounds (and unusual ways of producing them); there was an air of great seriousness on the part of the two men in their dark suits and ties; there were outbursts, titters, laughter, self-conscious observations of others, and hasty departures by various members of the audience; and finally, there was John Cage's ingratiating, ingenuous

manner of disarming hostile questioners at the end of the concert, with his infectious sense of humor and his readiness to respond directly to any inquiry without obfuscation. Throughout the question-and-answer period David Tudor was quiet, smiling to himself occasionally as he packed up the contact microphones and other paraphernalia while listening to John Cage's remarks. I thought to myself that if one ***really*** wanted to know what was going on during that concert, one should talk to David Tudor.

Merce Cunningham and Dance Company, with John Cage and David Tudor collaborating, performed on the University of Texas campus the next day, 12 November. I was unable to remain in Austin any longer and left for Lubbock immediately after meeting John Cage. During the nighttime drive back to the plains of West Texas, I decided that concertgoers in the Texas Tech and Lubbock musical community needed to be shaken up by a Cage-Tudor concert. I described the event to my friend and art-history mentor at Texas Tech, Professor Elizabeth S. Sasser. Dr. Sasser received a diploma from the Columbus [Ohio] Art School and a B.F.A., M.A., and Ph.D. in the history of art and architecture from Ohio State University. She taught in the College of Architecture at Texas Tech from 1949 to 1990 (she is now Professor Emerita) and is the author of three books and numerous articles. Betsy Sasser remains to this day one of the most intellectually curious, open-minded, and artistically adventuresome members of the academic profession that I have ever met, and she was absolutely convinced that we did need to have a Cage-Tudor concert on the Texas Tech campus. She was able to prevail upon Professor Gene Hemmle, head of the music department, to obtain the funding. Gene Hemmle, who died in Lubbock on 10 August 1992 (two days before John Cage's death in New York on 12 August 1992), was almost as intellectually curious, open-minded, and artistically adventuresome as Betsy Sasser, but he did become a bit angry with me about the Texas Tech appearance of John Cage and David Tudor and my involvement in it. That event began in the Coronado Room of the Student Union Building at 8:15 p.m. on Monday, 4 May 1964 and consisted of Ichiyanagi's *Music for Piano No. 4 (Electronic Version)* and John Cage's *Variations II and III* — no George Brecht this time (see Fig. 1, Texas Tech concert program).

Fig. 1.
Texas Tech concert program for John Cage - David Tudor performance, 4 May 1964.

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And so it came to pass that I met David Tudor on Sunday afternoon, 3 May 1964, when I picked him up at the Lubbock Airport. John Cage had already arrived, and the Sassers and I spent a pleasant Sunday morning with him at Tom and Betsy's lake house at Buffalo Springs Lake near Lubbock (see Fig. 2, John Cage at the Sassers' lake house).

Fig. 2.
John Cage at the Sassers' lake house near Lubbock, Texas, Sunday morning, 3 May 1964. Photo © 1964 by Elizabeth S. Sasser; used with permission.

[G]

The Lubbock "reception" of the performances of the Ichiyanagi and Cage pieces was even more uproarious than that in Austin. For *Variations II and III*, John Cage had contact microphones attached to practically everything that he planned to use, including an old mechanical typewriter upon which he typed, and with which he made great use of the right-margin bell and the return lever. He taped a contact microphone to his throat and drank water, staring at the audience in the most deadpan manner imaginable as the highly amplified sounds of his water-swallowing cascaded over the loudspeakers. Knowing what was coming from having witnessed the Austin performance, I could scarcely contain myself (I was supposed to have been "assisting" by operating the sound system) as he progressed to the next "Variations." He clipped a contact microphone to his cigarette holder and smoked. I understood the underlying reason for the cigarette holder, because John Cage had already told the Sassers and me that his doctor had told him "to get as far away from cigarettes as he could." In any event, the amplified sounds of his smoking via the cigarette holder were but mere wisps of audio-frequency information in comparison to the water-swallowing. Next, he attached a contact microphone to his eyeglasses, put them on, and read (see Fig. 3, Cage's incomplete notes for the Lubbock performance).

Fig. 3.
John Cage's incomplete notes for the 1964 Lubbock performance of *Variations II and III.*

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I wondered then, as in Austin, if this was the activity of a man who, like Flaubert, held the *bourgeoisie* in great disdain — or if it could have been the result of his study of Zen Buddhism with Dr. Daisetz Teitaro Suzuki — or both — or neither. Whatever it was, it was too much for most of the members of the Lubbock audience. They howled, they hooted, they hollered, and they pitched pennies, and if some pennies landed on the table among his performance materials, John Cage carefully moved them aside with a benign, ascetic expression on his face. The trumpet teacher, who was obviously outraged, marched out, went to his studio in the music building nearby, returned with his instrument, and performed an impassioned, raucous rendition of the tune "Anything You Can Do, I Can Do Better."

After the performance, John Cage told me that the reaction to his and David Tudor's performances in Texas gave credence to his theory that audiences in southern latitudes of the Northern Hemisphere were much more demonstrative at his concerts than audiences in northern latitudes. For example, Italian audiences were always highly demonstrative, while those in Norway or Sweden would sit through entire concerts of his music with almost no reaction whatsoever.

But this is supposed to be a memoir about David Tudor. What did David Tudor do; what did he have to say while in Lubbock? He performed dutifully, took an interest in my electronic studio, smiled his Cheshire-cat smile during John Cage's question-and-answer period, and was an appreciative guest at the Sas-
sers' house after the concert. He was exceedingly polite and a bit reticent at the party, until I asked him if he might be interested in a bit of local musical "folklore." He answered in the affirmative, so I played part of a recording that I had made on 19 March 1962, "Clyde E. Rhodes in Graduation Recital." Clyde E. Rhodes, Sr. (1893?-1963?), "the father of eleven children and grandfather of eighteen," was a retired cotton farmer who lived near Abernathy, Texas, and who "in January 1954, at the age of 60 […] entered

Texas Tech to study piano and organ," according to the liner notes for Austin Custom Records LLM-33-63124. Mr. Rhodes, a devout member of the Church of the Nazarene, returned to the study of music after four decades of farming and died within a year after performing his fateful "Graduation Recital" in March 1962. I played for David Tudor, John Cage, and the Sassers' other guests side 2 of the record, which contained the concluding items from Mr. Rhodes' recital: his speech, "The Inspiration of Music" (delivered from memory) and his own version of "Part 2 — Friska" from Liszt's *Rhapsodie Hongroise, No. 2*. These two performances reduced David Tudor to unrestrained paroxysms of laughter. He wanted a copy of the record, and of course I provided him with one. Later, I asked him what he did with it. He said in his offhand way, "Oh, I use it for modulation" (*i.e.*, electronic modulation of other sounds during concerts). Eventually he gave it back to me. He said, "Here, you keep it. You recorded it; you should have it." But years later, after Nora and I were married, he would still ask me to play it. He laughed as much as ever, especially at our parties in his honor, when he could gauge the reaction of other guests who had never heard the recording before. Clyde E. Rhodes' speech contained such profundities as "Music holds the family together. It warms the heart; it kindles an enduring love for home and the inmates." His "musicianship" was simply indescribable. John Cage, only mildly amused, said of the recording, "It's very warm."

Gene Hemmle soon forgave me for my connection to John Cage, David Tudor, and their Texas Tech concert. He helped me to obtain a fellowship so that I could attend graduate school at the University of Toronto and work in the well-equipped Electronic Music Studio there. I moved to Toronto, with all of my electronic gear, in the late summer of 1964.

Toronto and Buffalo, 1964-1966

I addressed my letter of application for admission into the graduate program in music at the University of Toronto, as well as all of my correspondence about working in the Electronic Music Studio (UTEMS), to its director, Professor Myron Schaeffer (1908-1965). Upon my arrival at the Faculty of Music's Edward Johnson Building, he welcomed me with great courtesy, showed a sincere interest in my activities, and gave me an introduction to the remarkable collection of equipment designed by Canada's pioneering figure in electronic music, Dr. Hugh Le Caine (1914-1977). Myron Schaeffer was to

become my advisor and principal professor. I soon learned, however, that he was seriously ill with heart disease. In spite of his illness, he was determined to work as hard as he could during that academic year, teaching his seminars and beginning work on a textbook on the techniques of electronic music composition. He and his wife "Lilein" treated me to their hospitality, and I in turn drove him to appointments with his cardiologist. When I left for Lubbock for the 1964 Christmas holidays, he asked me to buy him a bottle of Cuervo Gold tequila when I was in Texas. Cuervo Gold was a favorite of his — but it was not sold then in Ontario's provincially-operated liquor stores. I was happy to comply, and I took the bottle to his residence upon my return in early January. Unfortunately, he was never able to enjoy my New Year's present. Within days, he entered a hospital and died shortly thereafter. Mrs. Schaeffer insisted upon giving the bottle back to me, but I just put it on a shelf, unopened. I had known Professor Schaeffer for only four months, but I was devastated at his passing.

In the winter and spring of early 1965, David Tudor spent time in Buffalo, only an hour and a half drive from Toronto. He was affiliated with the State University of New York, and on 1 and 2 March, the Cunningham Company presented performances there. I attended the one on Tuesday, 2 March, renewing my acquaintance with David Tudor. This occasion was the first of the very few times that I heard him perform while seated at a keyboard, actually playing on the keys rather than working inside the instrument. He performed with John Cage in a quiet two-piano piece by Morton Feldman (*Ixion*, for the dance *Summerspace*), but his formidable technical prowess was evident. Even in this quiet piece, he revealed his remarkable control, his natural freedom of movement, and the immense reserves of his muscular power. Unquestionably, he was a pianist of the very first rank who, I discovered, more than lived up to his international reputation. It was during this period — the mid to late 1960s — that he was moving away from being a pianist and becoming a practitioner of "live" electronic music: as performer, collaborator, equipment collector, and eventually, composer. This shift in his direction was disappointing to some of his admirers, including certain composers who wanted him to perform their piano works.

David Tudor wanted to visit Toronto to see UTEMS; he was especially interested in Le Caine's equipment, about which he had heard so much. The new director, Professor Gustav Ciamaga (who as a fellow Canadian greatly

admired Le Caine), took great pleasure in having famous visitors come through so that they too could admire Le Caine's accomplishments. Later in March 1965, David Tudor came to Toronto, bringing with him Mauricio Kagel. The visitors were suitably impressed by what they saw at UTEMS, but I could tell that David Tudor wanted to engage in some socializing. After dinner, I invited him to my small "bachelor" apartment at 70 Spadina Road. He saw the unopened bottle of Cuervo Gold, and with his eyes lighting up he said, "Tequilaaaaah!" The bottle was mostly consumed that evening, and mostly by David Tudor. It was on that occasion that I observed for the first time his great fondness for tequila. He "loosened up," told stories about well-known composers and performers, and thoroughly enjoyed himself. When the bottle was nearly empty, I called a taxi to take him back to his hotel. David Tudor and I had many more occasions to drink tequila together over the next decade and a half. I even taught myself how to make margaritas, which he enjoyed immensely.

In the fall of 1965, Ciamaga hired Anthony J. ("Tony") Gnazzo as Research Associate for UTEMS. His duties were similar to those of a *Tonmeister* in the German electronic music studios, but he also performed maintenance tasks, ordered supplies, kept records, and composed his own electronic music. While still a graduate student at Brandeis University, he was a member of Myron Schaeffer's 1964 summer seminar in electronic music at UTEMS. Also in that fall of 1965, Ciamaga, Gnazzo, and I presented a concert of electronic music in the Recital Hall of Toronto's Royal Conservatory of Music, affiliated with the University, and not far from the Edward Johnson Building. My *Three Etudes for Magnetic Tape* (composed late 1964 - early 1965) were on the program. I made extensive use of equipment designed by Le Caine and dedicated the set of pieces to him. But despite my pride in having composed these pieces in a ***real*** electronic studio, I was dissatisfied with their concert presentation. They, like all "abstract" tape pieces, contained no visual interest at all. I decided during that concert to put electronic visual interest into my performances of electronic music. With Gnazzo's assistance as *Tonmeister*, I began my *Video* series that autumn, culminating in *Video II (B)*, for which I modified a black-and-white television set into an *x-y* display device. The electronic sounds "drew" evolving Lissajous patterns on the TV screen in exact synchronization with the music (see Figs. 4 & 5, *Video II (B)*, November 1965-January 1966).

Fig. 4.
Lowell Cross' *Video II (B)*, *x-y* scanning on the screen of a modified TV set. Photo © 1965 by L. Cross (1/30 sec. exposure of a kinetic image).

[G]

Fig. 5.
Video II (B), *x-y* scanning with *z-axis* modulation. Photo © 1966 by L. Cross (1/30 sec. exposure).

[G]

In early 1966, David Tudor visited me again in Toronto, seeing for the first time *Video II (B)*. He really must have liked it, because for months afterward he would say to people, including Cage, "Just wait till to you see Lowell Cross' *Video II (B)*." By then, I knew about David Tudor's interest in the Argentine tango instrument, the bandoneon, introduced to him by Kagel. Its "stereophonic" output from both ends of the instrument lent itself well for use with *x-y* display devices such as oscilloscopes and my modified TV set. Taking a bold plunge, I asked David Tudor if he would like for me to set up performance conditions for him, his bandoneon, a stereophonic microphone array, and modified TV sets (soon to include color TV). He agreed enthusiastically "You betcha!" — and he presented the première performance of my *Musica Instrumentalis* at the Art Gallery of Toronto (now the Art Gallery of Ontario) on 13 May 1966. Also on the program were Gnazzo's *In the World* and Cage's *Variations VI* (see Fig. 6, AGT concert program).

Fig. 6.
Art Gallery of Toronto concert program, 13 May 1966.

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I have documented *Musica Instrumentalis* and *Video II (B)* in issue no. 9 of *Source, music of the avant garde* (1971). This occasion was one of several when John Cage visited Professor Marshall McLuhan, the University of Toronto's famous writer on the media, technology, and society, whom John Cage invited to the concert. I noticed McLuhan leaving the Gallery shortly after *Variations VI* began.

The *9 Evenings*, New York City, 1966

In the mid 1960s, Dr. J. Wilhelm ("Billy") Klüver had formed Experiments in Art and Technology, Inc. (E.A.T.), an association of artists, engineers, and scientists. He and his colleagues were planning an ambitious program of "Theatre and Engineering" for October 1966, to take place in the 69th Regiment Armory on 25th Street in New York City. The choice of the Armory was no accident: it was the site of the *Armory Show* (actually, the International Exhibition of Modern Art), which opened on 17 March 1913 and included Marcel Duchamp's sensational *Nude Descending a Staircase*. The *9 Evenings*, as they came to be known, were supposed to be the *Second Armory Show*. David Tudor and John Cage were invited to present new pieces on two evenings each; the other artists were Steve Paxton, Alex Hay, Deborah Hay, Robert Rauschenberg, Yvonne Ranier, Lucinda Childs, Robert Whitman, and Oyvind Fahlstrom. Because of the technical and logistical demands of the pieces, each artist had a "performance engineer" — David Tudor's was Fred Waldhauer, for *Bandoneon !*; John Cage's was Cecil Coker, for *Variations VII*.

Musica Instrumentalis was the precursor of David Tudor's *9 Evenings* piece, *Bandoneon !* [*Bandoneon Factorial*] *(a combine)*. In 1973, seven years after the performances, David Tudor wrote, "The situation obtaining when a performer scans two media simultaneously to which I had been introduced through Lowell Cross's 'Musica Instrumentalis', contributed the performance method: a single performer feedback, which also obviated the need for any compositional means" (David Tudor, "*Bandoneon !*, Pre & Post-operative note," 1973; quoted in Experiments in Art and Technology, *9 Evenings: Theatre and Engineering*, undated in-house publication). David Tudor invited me to provide the video imagery for *Bandoneon !*. My interest increased when he told me that video projectors and large projection screens would be available for his performances.

I spent the summer of 1966 in Lubbock studying for comprehensive examinations. While there, I built for David Tudor a *Stirrer Jr.* — a four-channel sound-in-motion panning device modeled after my larger *Stirrer* (see documentation in issue No. 4 of *Source, music of the avant garde*, 1968). In a letter dated 26 August 1966, he thanked me for the *Stirrer Jr.*, informed me

more about the upcoming *9 Evenings*, and invited me to "come & stay a while." I visited him that fall at his old farmhouse near Stony Point, New York and became engaged in some of his electronic projects, including the repair of his Eico 3-inch oscilloscope. He knew that I never claimed to be an "expert" on the subject of electronics, but he was still ready to engage in discussions and ask questions. "Tell me about phase shift." He knew that phase (time) relationships between two channels were important considerations in stereophonic sound and the consequent relationships between stereo and *x-y* displays. He wanted to pursue the use of phase shift in electronic feedback circuits. I explained to him that he had already experienced himself as a feedback "component" in *Musica Instrumentalis*, during which his physical movement of the bandoneon between the microphones produced audible stereophonic phase-shift effects over the loudspeakers and visible kinetic phase-shift effects on the TV screens. We talked about feedback in general, which can bring audio, video, or servo systems to conditions of sustained oscillation. He also asked, "What does DC [direct current] sound like?" So I connected a flashlight battery to one of his loudspeakers, producing a "click." He asked "How loud can that be?" I explained that ordinary audio amplifiers do not have response down to DC (0 Hz), but that lightening was a DC discharge of very high power. If lightening struck close by, that loud "crack" was indeed the sound of DC.

During that visit I learned just how inscrutable and highly secretive David Tudor was. Once when he was in his farmhouse attic, I began to venture up the stairs to report my progress on one of his projects. I had just said, "David … ," when he called out in a loud, agitated voice, "Don't come up here right now! Wait!" I certainly did wait, and then after a lot of shuffling around, he said almost grudgingly, "OK, you can come up now." What was he hiding in that attic? Theosophical tracts by Madame Blavatsky? Anthroposophical tracts by Rudolf Steiner? Items relating to the occult? An extensive pornography collection? I didn't ask (I even forgot momentarily what I was going to talk about), and neither David Tudor nor I ever mentioned the incident again.

In September 1973, in response to a request from E.A.T. personnel for documentation about my involvement in David Tudor's and John Cage's *9 Evenings* pieces, I wrote, in part:

> The monochrome TV projectors available for the various performances of *9 Evenings* [used] a small, high-intensity cathode-ray tube […] with a Schmidt optical system to project the image developed on the screen of the tube. I had my chance to experiment with one of these projectors in the 25th Street Armory only a few hours before David's first performance on Friday evening, 14 October. At the time, I was a graduate student […] and I was able […] only at the last minute to fly to New York.
>
> The conversion of the projector for the purposes of *Bandoneon !* was relatively simple, but the repercussions were not. In the normal […] intended operating mode of the projector, the electron beam scans over the white phosphor screen at a very high rate — about 15,000 times per second — while producing an image of considerable intensity. After I made the conversion, the beam velocity was […] 10 to 150 times slower […] with my test signals. Even with most of the lights on in the Armory, a very bright, clear, sharply defined kinetic image could be seen tracing itself on one of the three large projection screens. I summoned David, Billy Klüver, and anyone else capable of being easily distracted […] .
>
> David was highly encouraged, [but] I noted that the images were becoming very slightly, but perceptively, fainter. Upon the dispersion of the small audience, I turned off the projector and looked inside. Permanently etched on the screen of its cathode-ray tube were all of the tracings of the [imagery that] we had just seen. […] My modified mode of operation had rendered the projector self-destructive. David and I now had the exclusive use of this particular projector […] .

David Tudor wrote in his 1966 program notes, "Bandoneon ! uses no composing means; when activated it composes itself out of its own composite instrumental nature." Later he provided an additional insight into his thinking about "single performer feedback" as part of a piece that "composes itself." "The audio processing and programming, as well as all the software, had to contribute to the oscillating (and unknowable) tendency — including the multiplication of circuits" (David Tudor, "*Bandoneon !*, Pre & Post-operative note," 1973, *op. cit.*). *Bandoneon !* was a challenging, complex, and seminal work for David Tudor as composer (see Fig. 7, David Tudor with his bandoneon and electronic modules).

Fig. 7.
David Tudor with his bandoneon and electronic modules during a trial run for the *9 Evenings*, fall 1966. Photo by Franny Breer, courtesy of Experiments in Art and Technology, Inc.

[G]

He never had the luxury of hearing, or seeing, all of his systems functioning simultaneously on either of his two "evenings." Admittedly, my TV projections did not work dependably because of their self-destructive nature. But he did have the collaboration of engineers from Bell Labs, who designed and constructed two of the highly specialized devices used in his performances: Bob Kieronski (Vochrome) and Fred Waldhauer (Proportional Control). David Behrman, Per Biorn, Tony Gnazzo, Billy Klüver, and James Tenney were involved with the remote-controlled carts that moved loudspeakers around on the Armory floor. *Bandoneon !* embodied on a grand scale the "composing" technique that David Tudor employed in many performance works that followed: a single performer (David Tudor himself) in a feedback loop, initiating processes that (hopefully) brought forth a piece that "composed itself" through a multiplicity of self-sustaining, and self-evolving, oscillations. David Tudor's methods, and his deliberately-paced development of them during an entire evening of composing-performing, help to explain his 1974 quote at the beginning of this memoir.

David Tudor was a great piano virtuoso, and in his transition to electronic composer-performer he retained the attitudes and orientation of a virtuoso. He lived on the edge; he made audiences wait until he could pull things off at the last minute; and he took great risks during his performances of *Bandoneon !* and subsequent electroacoustical works. He was a latter-day conjurer reminiscent of a Liszt or a Scriabin. Furthermore, he would not tolerate any kind of interference with, or impediments to, ***his work***. His work was the driving force of his life — even if he had to forego the benefits of "normal" personal relationships.

We spent most of Saturday, 15 October setting up for the first performance of John Cage's *Variations VII* that evening. As usual, John Cage relied a great deal upon David Tudor for equipment interconnections. John Cage planned to use "as sound sources only those sounds which are in the air at the moment of

performance, picked up via […] telephone lines, microphones," etc. (*9 Evenings* program notes). One collection of sounds that was supposed to come over telephone lines was the activity in the kitchen of Luchow's Restaurant in New York City. David Tudor had not yet connected those lines into the sound system by late afternoon, and John Cage was beginning to become a bit frantic. He came over to me and said in a pleading voice, "Lowell, David likes you. Would you please get him to connect up those phone lines to Luchow's so we can test them?" I talked to David Tudor, who agreed to do so — a bit later. He was preoccupied with his own setup for John Cage's piece. When the lines were finally interconnected and working properly, John Cage said to me, "David has no concept of time." By that he meant clock time, of course, not musical time. John Cage's piece was less ambitious than David Tudor's, but it had its share of performance glitches on both evenings, 15 and 16 October. Two years later, in Oakland, California, he told me that he was dissatisfied with the performances of *Variations VII*.

Toronto and London, Ontario; Hope, Michigan; Stony Point, New York; 1967-1968

In the 1960s the Estonian-born composer Udo Kasemets directed an innovative series of "Mixed Media Concerts" at The Isaacs Gallery, 832 Yonge Street in Toronto. He invited David Tudor to perform there in three concerts: Saturday, 15 April (8:30 p.m.) and Sunday, 16 April 1967 (3:30 and 8:30 p.m.).

David, his bandoneon, and his heavy, footlocker-style carrying cases full of electronic gadgetry occupied what room was available in my small bachelor apartment. I was listed on the concert program as David Tudor's assistant. Following are the works he performed:

Light Piece for David Tudor — Pauline Oliveros (projections by Anthony Martin)

pandorasbox, bandoneonpiece — Mauricio Kagel

Solo for Voice 2 — John Cage
with
Fontana Mix (realization for piano and electronic circuits).

In addition to hosting David Tudor and taking part in his concert *tours de force*, I was invited by CBC Radio to review his performances and two others taking place during the week of 16 April. The music critic for *The Toronto Star*, William Littler, received the same invitation and my good friend, the composer Harry Somers (1925-1999), interviewed us. The two other performances were *Hello, Dolly* playing at the O'Keefe Centre with the redoubtable Carol Channing in the lead role, and Arlo Guthrie singing "Alice's Restaurant" and other hippie-era songs at a Yorkville coffeehouse not far from The Isaacs Gallery. I could identify with David Tudor's performances, of course, and to a certain extent, with Arlo Guthrie's, but not *Hello, Dolly* — as I duly reported over the air. I received the impression that the circumspect critic William Littler did not particularly identify with any of the three performances, and least of all, David Tudor's.

John Cage, David Tudor, Toshi Ichiyanagi, and I were invited to give a performance on Thursday evening, 11 May 1967 at the Dimnent Memorial Chapel on the Hope College campus in Holland, Michigan (see Fig. 8, Hope College concert program).

Fig. 8.
Hope College concert program, 11 May 1967.

[G]

With the equipment setup well underway and apparently progressing to his satisfaction, John Cage looked around the college campus and discovered a well-equipped kitchen. He then went mushroom hunting. He did not find any morels, as he had hoped, but he did find some good edible specimens in the woods nearby. Next, he went shopping and came back with bread, butter, and a couple of bottles of red wine. He sautéed the mushrooms in butter, and I confess that I found his mushrooms to be a welcome, delicious treat, complemented by the bread, butter, wine, and the mutual conviviality of the composer-performers. John Cage was as pleased with the concert as we all were with his role as cook.

In the spring of 1967 Nora Horompo and I were engaged (we first met in the University of Toronto music library in September 1966). David Tudor invited us to visit him in Stony Point the following fall, not long before our marriage

on 25 November 1967. Nora and I remember his excellent talents as a cook. From his trips to India he had developed a flair for the cuisine of that region, but he had his own interesting variations on that style of cooking. He treated us to a dinner of

Flank steak, marinated in yogurt, *garam masala* and "secret" ingredients,
sliced diagonally, skewered, and cooked on a hibachi
Curried potatoes
Cucumber salad with yogurt dressing
California red wine
Dates and shredded coconut.

In February 1968, David Tudor, his bandoneon, and his heavy equipment cases arrived again in Toronto, this time at Nora's and my new apartment at 74 Spadina Road, next door to my former bachelor pad. He and I were invited to perform on Friday, 23 February 1968 at the University of Western Ontario in London, in a presentation of my works entitled *Electronic Sights and Sounds*. The two pieces on the program were *Video II (B)* and *Musica Instrumentalis* (David Tudor, bandoneon), preceded by my introductory remarks. The main attraction for us was the powerful black-and-white Eidophor television projector installed in the University's Natural Science Centre Amphitheatre. Its intensity was so great that it could be used outdoors to project large TV images in daylight. I began to think about large-scale projections and late-1960s technologies, especially lasers. Within a year and a half, David Tudor and I, in collaboration with the brilliant physicist and kinetic sculptor Carson D. Jeffries, presented the first multi-color laser light show to employ *x-y* scanning.

By this time John Cage had asked me to build the electronic chessboard for *Reunion*, an event scheduled for Tuesday, 5 March 1968 at the Ryerson Theatre in Toronto — less than two weeks after the University of Western Ontario performance. David Tudor visited us again for *Reunion*, which was to be an auspicious occasion: a game of chess, played on my chessboard by Cage and Marcel Duchamp, would bring about the selection and spatial distribution of sounds over an eight-channel array of loudspeakers surrounding the audience. Those sounds were to be from pre-existing works by John Cage's composer-collaborators David Behrman, Gordon Mumma, David Tudor, and Lowell Cross. Duchamp decisively beat his chess pupil

John Cage within half an hour in the first game, despite the handicap of playing with only one knight. A second game between Mme. "Teeny" Duchamp and John Cage lasted until the wee hours of the morning of Wednesday, 6 March and had to be finished later. In the audience were Marshall McLuhan (who left early on this occasion, too) and the organizer of the event, Udo Kasemets. David Tudor did not enter into this affair with much enthusiasm (see the expression on his face in Fig. 1 of my documentary article about *Reunion*, in *Leonardo Music Journal*, Vol. 9, 1999, pp. 35-42). From our performances together it had become increasingly clear to me that David Tudor felt that he had to be in control — complete control. He did not like at all the notion of a chessboard controlling his sounds, especially if those sounds could be blocked from being heard by the positions of chess pieces during a game. He wore headphones throughout the evening so that he could monitor his own performance.

Perhaps to compensate himself for his diminished sound-producing role, he asked me if I could connect his electronic modules into one of my two modified *x-y* television sets on stage. I complied with his request, of course, and later he reported "Since that time I have come to the point where I don't need to hear the sound any more, but only to look at it, because I can tell what it would sound like from seeing it" (David Tudor, the consummate virtuoso, quoted in Michael Nyman, *Experimental Music: Cage and Beyond*, Cambridge University Press, 1974, p. 83).

Mills College and the First Laser Light Show, 1968-1969

Upon the completion of my graduate work at the University of Toronto in 1968, Nora and I moved to Oakland, California. I accepted the position of "Artistic Director" of the Tape Music Center (TMC) at Mills College; Tony Gnazzo was already there as "Technical Director." One autumn day, Gnazzo received a telephone call from Professor Carson D. Jeffries of the physics department at the University of California, Berkeley (UCB). In addition to his very impressive research and teaching career as a physicist, Professor Jeffries was an avid designer and builder of kinetic sculptures. He wanted to try his hand at the TMC's Buchla synthesizer to make electronic sounds to accompany the presentation of his works. Gnazzo invited him, and my acquaintance with this remarkable man began. C.D. Jeffries was born in Lake Charles, Louisiana on 20 March 1922, received his Ph.D. in physics from

Stanford University in 1951, and taught in the UCB physics department from 1952 until his retirement in 1992. He died of a brain tumor at his home in Oakland on 18 October 1995.

I soon had the chance to tell Carson D. Jeffries about my ideas for using laser beams and *x-y* scanning to create large-scale multi-color displays from audio materials. I was already familiar with strip-chart recorders employing light-beam galvanometers, and I proposed to Carson D. Jeffries that a pair of those mirror galvanometers mounted in a 90° tandem arrangement would permit real-time *x-y* scanning, and large-scale projections, when used with a laser as light source. He became immediately interested, opened his palms, brought them close together, and moved them in opposite directions — as though they were mirror galvanometers. He then exclaimed, "Yes, that should work!"

Merce Cunningham and Dance Company, including John Cage and David Tudor as musicians, appeared at Zellerbach Hall on the Berkeley campus 9-10 November 1968. David Tudor stayed with Nora and me instead of with the rest of the dance group at a hotel. He had discovered Nora's talents as an excellent cook — and he liked my bartending capabilities. We took good care of David Tudor at our Oakland and Iowa City dwellings on many occasions over the next decade. At our Oakland apartment I told David Tudor about my plans for laser performances and my discussions with Carson D. Jeffries. In response, he told me about the possibility that Billy Klüver and E.A.T., Inc. might become involved with Pepsi-Cola in outfitting an "art and technology" pavilion for the upcoming 1970 World Exhibition, Expo '70, in Osaka, Japan. He hinted that a laser or lasers might become part of the installation. Furthermore, a laser scientist named Elsa Garmire at the California Institute of Technology in Pasadena had suggested that colored beams could be made to rotate inside the space, possibly reflected from a mirror ball. David Tudor and I were a bit cautious about our respective thought processes that November, especially when I told him that a rotating mirror ball scheme for use with colored beams was a trivial idea, whether proposed by a laser scientist or not. He informed me that he was to be one of four "Core Artists" supervising E.A.T.'s installations at the pavilion, including the audio system and probably, lasers. I was moderately interested in the concept of an art-technology pavilion at the time, but I was much more interested in developing an *x-y* laser projector with Carson D. Jeffries.

My short-lived appointment at Mills (which the college administration abruptly terminated at the end of the 1968-1969 academic year) had as its culmination the very first multi-color laser light show with *x-y* scanning. We presented it on the evening of 9 May 1969 in the outdoor Greek Theatre behind the music building on the Mills campus. Carson D. Jeffries and I spent several months planning, designing and constructing specialized mounting hardware, and collecting equipment, much of it borrowed from high-tech firms in the Bay Area such as Honeywell (mirror galvanometers and amplifiers) and Coherent Radiation Laboratories (a krypton laser). I have documented this activity in "Audio/Video/Laser," *Source, music of the avant garde*, issue No. 8 (1970); and in "The Audio Control of Laser Displays," *db, the Sound Engineering Magazine*, Vol. 15, No. 7 (July 1981). I invited David Tudor to join me as a composer-collaborator for this final event of the TMC's concert season (see Fig. 9, Lowell Cross and David Tudor setting up for the first laser light show).

Fig. 9.
Lowell Cross, Eugene Turitz, and David Tudor setting up for the first laser light show, Mills College, 9 May 1969. Photo by Baron Wolman for the Tape Music Center.

[G]

The works on that concert were Patrick Gleeson's *Public Roads* (1969), Darius Milhaud's *Étude Poétique* (1954, receiving its first public performance 15 years after its completion), an intermission feature by Anthony J. Gnazzo, and the Cross-Tudor collaboration, *Audio/Video/Laser*. Carson D. Jeffries and I named our equipment VIDEO/LASER, which, according to the TMC program notes, was "a pilot project for a proposed laser-generated display system for the Pepsi-Cola […] Pavilion at the Osaka [1970] World Exhibition." By this time, David Tudor in his role as an E.A.T. "Core Artist" was committed to a multi-color *x-y* laser system for the Pepsi-Cola Pavilion. As usual, he stayed with Nora and me at our Oakland apartment during those heady, memorable days in May 1969.

The Expo ’70 Laser System, Oakland and Osaka; Ahmedabad, India; 1969-1970

David Tudor was able to secure for Carson D. Jeffries and me a commission from E.A.T., Inc. to construct a four-color (pure-spectrum red, yellow, green, and blue) laser deflection system for the Pepsi-Cola Pavilion at Expo ’70. With the termination of my employment at Mills College, I was free to devote full time to this project. After some delays, E.A.T. made available the funding to purchase a Coherent Radiation Laboratories Model 52G krypton laser and Bell & Howell mirror galvanometers and amplifiers. I kept these precious components locked in a secure storage area at our Oakland apartment until Carson D. Jeffries was ready to start to work. Even though he had his full load of teaching and research in the fall of 1969, he soon began the mechanical fabrication of the laser mounting assembly, the prism and mirror support hardware, and the *x-y* galvanometer alignment devices in the sculpture studio at his home in the Berkeley hills. I began to build the electronic control interface for the galvanometer amplifiers at our Oakland apartment. In December 1969, we were ready for the final assembly and testing of the system, which we named VIDEO/LASER II, in one of Carson D. Jeffries’ physics laboratories at Le Conte Hall on the Berkeley campus (see Figs. 10 & 11, David Tudor, Carson D. Jeffries, and Lowell Cross with the completed VIDEO/LASER II, December 1969).

Fig. 10.
David Tudor, Carson D. Jeffries, and Lowell Cross with the completed VIDEO/LASER II in Jeffries’ UC Berkeley laboratory, December 1969. Photo by Lowell Cross using camera with delayed shutter.

[G]

Fig. 11.
Jeffries, Tudor, and Cross with VIDEO/LASER II, December 1969. Photo by Cross using delayed shutter.

[G]

For over a week in December 1969, David Tudor was a guest at our Oakland apartment. Unfortunately, Nora discovered what John Cage meant when he

said, "David has no concept of time." I confess to my share of the blame, but Nora became a "laser widow" and had to sit at home watching her excellent dinners become colder and colder on her beautifully-set dining table. I could see that David Tudor's preoccupation with ***his work*** was becoming incompatible with Nora's wishes to be a gracious hostess.

My parents and sister, Professor and Mrs. J. C. Cross and Ms. Evelyn Cross (now Mrs. David Duncan), visited us in Oakland at Christmas 1969 — after David Tudor had left. I was very proud to show to them, and to Nora, our fully-functioning four-color laser light apparatus with *x-y* scanning. (see Figs. 12, 13, 14, & 15, kinetic laser imagery from VIDEO/LASER II, December 1969).

Fig. 12.
Cross: *Video II (L)*, © 1969.

[G]

Fig. 13.
Jeffries: *Spirals*, © 1969.

[G]

Fig. 14.
Tudor: *The Red, Green, Blue, and Yellow Submarine*, © 1969.

[G]

Fig. 15.
Cross/Jeffries/Tudor: *Laser Scanning with Z-axis Modulation*, © 1969.

[G]

After our very family-oriented Christmas respite from Nora's intense tour of duty as cook and hostess and my intense period of work on the laser system, she and I began to make our travel plans for the first half of 1970. I would leave for Osaka in early February to spend over a month installing VIDEO/LASER II and helping David Tudor with the sound system (Gordon

Mumma designed the control console). Nora would join me in Osaka around 12 March, in time to recover from jet lag and to observe the dedication ceremonies of the Pepsi-Cola Pavilion on the opening day of Expo ’70, 15 March. VIDEO/LASER II worked perfectly as long as I was there to take care of it, but I was disappointed that there was no interest on the part of E.A.T. officials in making my laser-activating sound materials audible. The Expo crowds were overwhelming — 100,000 people stood in line to see the moon rocks at the U.S. Pavilion. Nora and I took refuge in restaurants in the Czech and New Zealand Pavilions, where we could eat non-Japanese food for a change. Over the six-month duration of Expo ’70, March-September, there were 2,000,000 visitors to the Pepsi-Cola Pavilion.

After a few days, we left Osaka and toured Kyoto, Nara, and a small part of Tokyo. Then we departed for Hong Kong and spent three wonderful days on a shopping spree. The next stop was Bangkok, but first we had to fly over Vietnam during a frightening thunderstorm while the battle of Hue was raging below. In Bangkok we toured the temple and palace grounds, ate Thai food, and savored our last European meal for the next several weeks at the *Normandie* restaurant.

Our destination was Ahmedabad, India. David Tudor had recommended that I act as a consultant at India’s first electronic music studio, an installation at the National Institute of Design (NID) in this "village" of 1.5 million people 275 miles / 440 km north of Bombay. The influence of David Tudor and Billy Klüver had secured for me a John D. Rockefeller III grant to sort out the studio’s many technical problems. Within a few weeks, I had solved the problems, supervised the rewiring of the patch panel, and had aligned and calibrated the two Ampex professional tape recorders. With its Moog synthesizer and auxiliary equipment, NID now had a truly functional electronic music studio, but alas, one without any composers.

I received several telex messages at NID from the Pepsi-Cola Pavilion — certain laser colors were not working properly. I tried to troubleshoot the problem via telex, but there was no one left at the Pavilion in April who could effectively maintain the system (see Klüver, Martin, & Rose, eds., *Pavilion*, New York: E. P. Dutton, 1972). Almost thirty-one years later, at 8:30 a.m. local time on Friday, 26 January 2001, a 7.9 magnitude earthquake devastated

large areas of Ahmedabad and much of northern Gujarat. The epicenter was in Bhuj, 185 miles / 300 km west of Ahmedabad.

While in Ahmedabad, we were the guests of the wealthy Sarabhai family, patrons of NID. David Tudor had known the Sarabhais for quite some time; he was a frequent topic of conversation. His recommendations had allowed us to travel to Japan, Hong Kong, Thailand, India, and eventually around the world. Nora and I arrived back at our Oakland apartment in May 1970. In India we had time to act like real tourists. We went camel riding with the Sarabhais, visited many temples and other architectural sites in the Ahmedabad region, and traveled to Bombay, Udaipur, Delhi, and Agra. But unquestionably the most important event for us in 1970 was the birth of our daughter, Karen Adrienne, on 19 November!

Iowa City, 1971-1975

After interviews in February 1971 at The University of Iowa with Professor William Hibbard (1939-1989) and other officials, I was offered a dual position: head of my own VIDEO/LASER project, sponsored by the Center for New Performing Arts (CNPA, administered by Hibbard), and director of the Recording Studios in new facilities for the School of Music still under construction. During the 1971-1972 academic year, I had no teaching duties, so that I could devote one-half of my "full" time to the development of each of these two operations. My academic assignments to teach recording and art/technology in the School of Music began in the fall semester of 1972, and they continue to the present, twenty-nine years later.

On 21 September 1971, I sent to E. P. Dutton & Co., Inc. my biographical article on David Tudor, which I had written at his request. This was to be his entry in the forthcoming *Dictionary of Contemporary Music*, John Vinton, editor. One can find on p. 769 of the *Dictionary* the following: "Tudor possesses one of the world's largest collections of custom modular electronic devices, many of his own manufacture. His choices of specific electronic components, transducers, and their interconnections define both composition and performance in his works. His sound materials unfold through large gestures in time and space, and […] his compositions are associated with visual forces: light systems, dance, television, theatre, film, or laser projections" (© 1974, 1972, 1971, by E. P. Dutton & Co., Inc.). David Tudor

liked my entry, and apparently others have too, especially the quote above. These words, either verbatim or slightly modified, may be found in conspicuous places without attribution to the original author: *Baker's Biographical Dictionary of 20th Century Classical Musicians* (David Tudor entry) and three web pages:

http://www.lovely.com/artists/a-tudor.html,
http://www.emf.org/tudor/About/about.html, and
http://www.getty.edu/research/tools/digital/davidtudor/html/bioindex.html.

I did not collaborate again with David Tudor until February 1973, by which time Carson D. Jeffries and I had completed VIDEO/LASER III (owned by the University and funded by the CNPA's grant from the Rockefeller Foundation). Carson D. Jeffries came from Berkeley for the public première of VIDEO/LASER III, a performance of my *Electro-Acustica A* for orchestra, soloists, electronics, and laser projections. We presented the work, conducted by William Hibbard, in the University's new Hancher Auditorium on 29 November 1972. VIDEO/LASER III was a vast improvement over VIDEO/LASER II, the Expo '70 system. Beam-scanning technology had become more advanced in the interim, and the University had purchased for my project a new Coherent Radiation Laboratories Model 52G argon-krypton laser with higher power and a greater choice of vivid colors than the Expo laser.

The composer Edward Miller at Oberlin College heard about these developments and invited Hibbard, his UI Center for New Music (CNM) ensemble, the laser system, and me to perform there on Friday, 16 February 1973. My own piece for the evening was *Electro-Acustica B* for instruments, electronics, and laser projections. I was able to persuade Ed Miller to invite David Tudor to collaborate with me in laser activities for the first time since Expo '70. David Tudor and I offered a "post-concert event," *Free Spectral Range*, the first in a series of four performance works with that title.

William Hibbard, the composer Peter Tod Lewis (1932-1982), our other colleagues and students affiliated with the CNPA and CNM, and I had a great time with David Tudor at Oberlin College. Hibbard agreed to a CNPA-sponsored laser event at The University of Iowa to take place in the spring. This was *Free Spectral Range II*, presented on three evenings, Tuesday

through Thursday, 12-14 June 1973 on the open-air terrace in front of the Museum of Art. We hung a large screen on the side of an adjacent building and projected from inside the Museum, through a ceiling-high plate-glass window (see Fig. 16, electronic control setup for VIDEO/LASER III inside the UI Museum of Art).

Fig. 16.
David Tudor (in foreground), William Matthews (graduate student helper), and Lowell Cross setting up for *Free Spectral Range II* at The University of Iowa Museum of Art, June 1973 (Carson D. Jeffries is obscured by David Tudor).
UI Center for New Performing Arts photo.

[G]

Four large loudspeaker systems surrounded the attendees, and our scanning laser beams went over their heads to the screen on the other side of the terrace. Carson D. Jeffries came from Berkeley, joining David Tudor and me — and an enthusiastic group of faculty, staff, and student collaborators. There was a full moon, and I sent laser beams in its direction and to the dome of the University's "Old Capitol" across the Iowa River. Carson D. Jeffries observed that I might have been successful in reflecting "a few photons" of laser radiation back to Earth from the corner reflectors left behind on the moon's surface by the astronauts.

During his June 1973 visit David Tudor stayed in the basement of our "new" 1956-era house in Iowa City. He had brought with him about five of his heavy footlocker-style cases containing his electronic gadgetry and cables, plus another bag or two for his clothing, toiletries, potables, and special mixtures from exotic regions around the world. When he first stayed with me in my Toronto bachelor pad, I noticed him making and imbibing his so-called "medicinal" preparations. These were elixirs that he concocted from rum, which he carefully filtered through secret, and mysterious, herbaceous ingredients into one or more well used, darkly stained plastic flasks. I started calling the contents of those flasks "Medicine Man," and the name stuck. David Tudor was still preparing and consuming "Medicine Man" in Iowa City in 1973 — and for the rest of the time that I knew him. He sipped those

preparations during the day and at night, but he drank tequila neat, on the rocks, or in margaritas before dinner, and requested wine with dinner. He did not like beer, gin, or any of the whiskies.

When the time came for David Tudor to leave, I was dreading the prospect of helping him to carry his heavy footlocker-style cases and other baggage up the basement stairs so that I could take him and his belongings to the Cedar Rapids Airport, a half-hour drive from Iowa City. However, he announced that he was departing not from Cedar Rapids, but from the Des Moines Airport, 120 miles / 200 km to the west. David Tudor was not by disposition an early riser, and when Nora and I heard his travel plans, he was running precipitously late to catch a flight out of Des Moines. We hastily loaded the car and took Karen with us. We arrived in time for his flight, fortunately, and I began the chore of unloading his cases as David Tudor engaged a skycap. The man was taken aback by what he saw, and he was even more taken aback when he began to lift the first case onto his cart. We left David Tudor with that bewildered man and took a leisurely drive back to Iowa City. I did not work professionally with David Tudor again for almost three years, but he did come to visit us.

On 20 February 1974, David Tudor wrote to us from The Retreat, Shahibag, Ahmedabad, India, where he had been visiting his old friend and the matriarch of her family, Smt. Manorama Sarabhai. He wrote, "[…] on a visit to Madras I fell & fractured my left wrist, which has me in a cast […] hope to see you soon […] . Did you sweep the comet's [Kohoutek's] tail with your laser?" He came to Iowa City the following mid-October for a visit; there were no professional engagements at that time. Upon his arrival, he said, "I'm going to do something that may surprise you. I'm going to smoke." We didn't like the idea, especially with Karen just approaching her fourth birthday, but he lit up anyhow and smoked about two packs a day during his five-day visit. He confessed that he started smoking again after a long abstinence "out of boredom" after he fractured his wrist. Insofar as I know, he smoked to the end of his life; he also continued to drink "Medicine Man" and tequila. I was beginning to worry about his lifestyle and the effects that it may be having on his health.

He brought us gifts from India as well as some strange items for his own use. One was a hemp-seed oil soap that contained not only the oil from the seeds,

but whole hemp seeds themselves. Nora called it "bird-seed soap." We found seeds in our basement bathroom for some time after he left. He also brought with him a type of hair dressing sold in India that had solidified during his flight from New York to Iowa City. To melt it back to a usable consistency, he placed it on top of the shade of one of the lamps in our basement — and left the lamp turned on for a long period of time. The odiferous qualities of that hair dressing soon permeated the entire house, mingling with the smells of stale cigarette smoke. We made the visit as pleasant for him as possible, but we did air the place out after he left.

On one evening during his stay, David Tudor wanted to see the laser system in operation again. When we finished he asked about pipe organs in our new complex of buildings, so I took him to Clapp Recital Hall, with its new 3-manual, 74-rank Casavant tracker-action organ. The hall was empty, and David Tudor decided to play. On this, the only occasion that I heard him play an organ, I could hear the high level of his virtuosity despite his healing wrist and lack of practice in recent years. He performed the fast section of a Purcell organ *Voluntary*.

There were two very memorable events for us in 1975, during which time we had little contact with David Tudor. Gregory James Cross was born on 25 March 1975! Six months later, on 24 September 1975, I presented my multi-color laser realization of the "Luce" part in Scriabin's *Prometheus, The Poem of Fire* in the University's Hancher Auditorium before two audiences totaling 4,200. James Dixon conducted the University of Iowa Symphony Orchestra and Kantorei; James Avery was the piano soloist. The 1970s Iowa audiences, more than ready for such an event (which included the burning of Russian incense and a cloud infused with No. 4711 Eau de Cologne that came down from the ceiling), were ecstatic.

Laser Performances Abroad and a Last Trip to Iowa City, 1976-1980

I was invited to present laser concerts at the Festival Internacional Cervantino, Guanajuato, Mexico, 2-15 May; and at the National Autonomous University in Mexico City, 21-23 May 1976. Carson D. Jeffries joined me for outdoor performances in Guanajuato; David Tudor collaborated with me in a large art gallery at the University in Mexico City. We named those 17 composition-performances *Free Spectral Range III*. The audiences at both

venues were fascinated by the laser equipment and greeted the performances with great enthusiasm. There is little to report about David Tudor's activities at that time except that he greatly enjoyed the excellent food provided by our hosts; he also had the opportunity to try some fine tequilas, including Herradura *Hornitos* and Sauza *Conmemorativo*.

The following year, the three of us were invited to perform with VIDEO/LASER III at the World Music Days Festival of the International Society for Contemporary Music (ISCM) in Bonn, Germany. David Tudor's and my performances of *Free Spectral Range IV: Laser Environment* took place on 14, 16, and 17 May 1977 at the Kultur Forum in Bonn. Carson D. Jeffries could not attend, but he sent his special sound-and-image generating equipment that he used in Mexico as his contribution to our ISCM presentations in Bonn. The young German students and composers, perhaps schooled in the Darmstadt and Donaueschingen festival traditions, were very serious, very inquisitive, and obviously divided into camps. They did not have much to say to me, but because of his reputation and high visibility in Europe, they set their sights on David Tudor after the concerts. His secretive nature became apparent on such occasions. If asked, "What is the aesthetic basis of your compositions?" or "What is the relationship of the laser projections to the sounds?" or "What does this (or that) device do?" David Tudor would usually say with his Cheshire-cat smile and a chuckle, "Oh, don't ask." Some of the young Germans were disappointed with their inability to communicate with David Tudor, whom they revered as a hero figure in new music; others, less favorably disposed to him at the outset, became visibly frustrated. David Tudor would simply sip some "Medicine Man" and begin his post-concert packing.

Merce Cunningham and Dance Company performed at the University's Hancher Auditorium on Friday and Saturday, 25 and 26 February 1977. The musicians touring with the group were David Behrman, Joe Kubera, and David Tudor, who as always stayed at our house. John Cage and Gordon Mumma did not come to Iowa City for these performances. After the Saturday evening event, I invited David Behrman and Joe Kubera to accompany David Tudor and me to our house. Joe Kubera respectfully declined, so our threesome had a quiet party (Nora, Karen, and Gregory had already gone to bed). As usual, David Tudor wanted tequila, which I kept on hand during his visits. He drank a bit more than he should have and decided to go outside for

some fresh air. It was a very cold night; David Behrman and I became concerned when he did not come inside after a few minutes. I found him and took him down to his bed in the basement. After I returned from taking David Behrman to the on-campus Iowa House, where the dance group was staying, I checked on David Tudor. He was asleep on the floor, with the TV set still on, but tuned to a channel that was off the air. I was able to get him to into bed, turn off the TV, and then go to bed myself. That was the last time that he visited us in Iowa City.

In 1980, three years later, David Tudor and his New York Agency, Artservices, booked for us a European tour. Concerts were arranged for Venice, Rome, and Linz. Nora had not returned to her native Hungary since 1956, when as a child she and her parents left at the height of the Hungarian Revolution. We decided that she, Karen (age 9), Gregory (age 5), and I would spend a few days with her relatives in Budapest and then join David Tudor in Venice. We had a great time in that beautiful city on the Danube.

The first stop of the laser tour was the "Lido," the island famous for its beach near the city of Venice. We were to perform at La Biennale, the prestigious art, music, and film festival. Upon meeting David Tudor at Hôtel des Bains on the Lido, we could tell that he was tense and irritable. He became more agitated when we learned that the 1,600 pound / 725 kg shipment of laser equipment was still in Rome, awaiting a truck and driver to bring it to Venice. The equipment finally arrived less than 24 hours before our scheduled performance of *Laser Concert* at 5:00 p.m. on Friday, 29 August 1980. My assistant Stephen Julstrom and I had to stay up all night unpacking the delicate equipment, securing electrical and water connections for the laser, and assembling the entire system at Casinò La Perla. Despite the frantic activity during our setup period, the performance was glitch-free and very well received. (I had received funding from the University of Iowa Foundation to upgrade VIDEO/LASER III to a six-beam system the preceding spring.) Carson D. Jeffries did not accompany us on this tour, but he again sent his special equipment. I was very pleased that I could use it to good effect at La Biennale.

Our next stop was Rome, where VIDEO/LASER III had already languished for a while before being transported to Venice. We were engaged to give open-air performances of *Laser Concert* in the ancient Roman Forum as part

of a series called "Massenzio Musica" (Massenzio = Maxentius, Roman emperor, d. 312, who built the Temple of Romulus at the end of the Forum next to our performance site. See Fig. 17, "Massenzio Musica" poster).

Fig. 17.
Poster and concert program for *Concerto per Laser*, "Massenzio Musica" series at the Roman Forum, 3-4 September 1980.

[G]

We were scheduled to project our kinetic laser images onto a large screen, with our sounds amplified over an impressive audio system, on Wednesday and Thursday evenings, 3 and 4 September, at 8:30 p.m. Unfortunately, (or fortunately, depending upon one's point of view), the publicity for our event had the wrong dates. The huge crowd that assembled on Wednesday, 3 September was expecting a showing of horror movies, as we discovered later. I remembered John Cage's theory about demonstrative concertgoers in southern latitudes, especially Italian ones, as the audience went into a state of pandemonium after seeing our laser imagery and hearing our electronic sounds. David Tudor, Julstrom, the equipment, and I were atop the *cabina* housing the movie projectors, and soon we were assaulted with catcalls, pebbles, bottles, and cans. Finally an official of the Massenzio Musica concert series climbed up to tell us why the audience was demonstrating, and shortly thereafter we terminated our *Concerto per Laser*.

Then an old black-and-white horror movie began, to the enthusiastic response of the audience. It was a really bad movie, and I thought, "You really prefer this to a high-tech laser performance?" Predictably, the scene soon came in which the villain was threatening to plunge his dagger into the young heroine's throat. I had to have my revenge: I sent a brilliant red laser beam right to her Adam's apple. Then all hell broke loose — the earlier level of pandemonium was nothing in comparison to this new outburst of uncontrolled, passionate emotions. The others atop our *cabina* pleadingly urged me to turn off the laser, completely, for the rest of the evening. I did, while David Tudor was left to contemplate the exigencies that required him to perform "for less than an hour." The Thursday, 4 September performance did not have the wrong publicity and was very favorably received by the audience.

Our final venue on this 1980 tour was the Brucknerhaus, Großer Saal, in Linz, Austria for the Festival "Ars Electronica." The Cross Family was well housed, our setup went smoothly, and all seemed in order for our *Laser Concert* on Wednesday evening, 10 September. I soon discovered, however, that David Tudor had his own "family" meeting him in Linz. I knew nothing in advance about his group, "Composers Inside Electronics," John Driscoll, Philip Edelstein, Ralph Jones, and David Tudor himself. I certainly harbored no ill feelings against his young associates, never having met them before, but it soon became apparent to me that David Tudor was much more concerned with their welfare than with that of the Cross Family. We ended our association. After Nora, Karen, Gregory, and I said good-bye to him on Thursday morning, 11 September 1980 in the presence of his group (he remained silent), we never saw him again.

Coda

David Tudor was a quiet, private, and highly secretive individual. He enjoyed the company of others, but in the 1960s and 1970s he seemed wary of making close personal ties; his work was the overriding concern of his life. He mentioned his former close friend Mary Caroline Richards to me only one or twice in passing. He never discussed his family, politics, philosophy, or religion in my presence. On Sunday afternoon, 10 October 1999, I had the opportunity to speak with Joy Nemiroff, David Tudor's sister, for the first time. During our telephone conversation I apologized to her that I knew almost nothing about her. I explained that David Tudor never mentioned his family to me. She chuckled (reminding me of David Tudor's chuckle) and said, "Remember, I grew up with him." David Tudor was two years younger than his sister.

He never owned a car during our acquaintance; he may not have even learned to drive one. But this was no impediment to his activities; why drive when he could get others to drive (and load and unload) for him? His 100-year-old farmhouse near Stony Point, NY was modestly furnished; I found it to be a bit cold in winter. He had hot and cold running water indoors (from a well) but by necessity he and his guests used an outhouse.

David Tudor was the quintessential experimental composer. He experimented at home, he experimented on his travels, he experimented on stage: before, during, and even after his concerts. He kept a supply of almost-dead batteries on hand for powering his many electronic modules, treasuring them much more than fresh ones, which he could always buy. He liked the sounds he obtained from his equipment while his batteries were dying — he liked to be surprised during his own performances, just as John Cage did. Even when performing another composer's music, he experimented, pushed matters "to the edge," and contributed his sound materials on his own terms. Once after an all-Cage concert at the University of Rochester, he said to me, "I believe that it's my responsibility to add as much dirt as possible to the performance." Perhaps he thought that John Cage's ideas, and Cage's ways of realizing those ideas, were too pure. I miss the inscrutable David Tudor, "warts and all."

List of Collaborative Works by Lowell Cross and David Tudor, 1966-1980

- *Musica Instrumentalis* (Cross, composer; 1966).*
- *Bandoneon !* (Tudor, composer; 1966).*
- *Reunion* (conceived by Cage; Cage and the Duchamps, players; Behrman, Cross, Mumma, and Tudor, composers; 1968).*
- *Video III* (1968). Live electronic music with video images on black & white and color TV sets modified by Cross; University of California, San Diego; La Jolla, CA, 10 May 1968.

Note: the following are joint Lowell Cross - David Tudor works, in collaboration with Carson D. Jeffries.

- *Audio/Video/Laser* with VIDEO/LASER I (1969).*
- VIDEO/LASER II (1969-1970).*

All following works were performed in conjunction with VIDEO/LASER III.

- *Free Spectral Range I — IV* (1973, 1976, 1977).*
- *Laser Concert* (1979). Live electronic music with laser images; Xenon (a "disco"), New York, NY; 28 February 1979.
- *Laser Concert* (1980). Venice, Rome, Linz.*

*See text.

Acknowledgements

I am very grateful to Professor Elizabeth S. Sasser, Lubbock, Texas; David Hunter, Music Librarian, The University of Texas, Austin; Kathleen McMorrow, Music Librarian, University of Toronto; Professor Maggi Payne, composer, Mills College; Udo Kasemets and David Behrman, composers; Julie Martin, E.A.T., Inc.; and my dear friend Professor Elizabeth Aubrey, colleague and musicologist — for the contributions that each has made in the preparation of this memoir.

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NOTE: The first half of this article appeared in edited form in *Musicworks* magazine (Toronto), no. 79 (spring 2001), pp. 25-31.