

## Acknowledgements

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Chris Madak. Philadelphia, Fall 2010.

## Morton Subotnick's *Touch* an Introduction

Morton Subotnick (b.1933, Los Angeles) was studying composition with Darius Milhaud at Mills College in the late 1950s and performing regularly as a clarinetist with the San Francisco Symphony and the Mills College Chamber Players when he accepted a commission from Herbert Blau to compose music for a production of "King Lear" by the Actor's Workshop. He used his honorarium to purchase a tape recorder, for use in the creation of the piece, and later described its transformative impact on his practice thus:

*When I finished, I felt that my life's work was before me. Here was a chance to be both performer and creator. I could get rid of the clarinet and the two sides of me would become one. I could create and perform in my studio, and it would come out as a sound piece, which was at once a musical creation and a performance. It needed no further intervention. It was music as studio art. I was ecstatic and clear in my vision of the future. But I was also dejected at the thought of spending my life cutting and pasting together tiny bits of tape. I began to dream and research ways to create a kind of electronic music easel in keeping with the studio art metaphor. And, as it turned out, there were many out there thinking the same thing, one of whom was my*

*new friend Ramon Sender, soon to be my colleague.*  
(Bernstein 112-113)

Subotnick and Sender, as it happened, were in the right place at the right time. In 1962, they pooled their equipment and established the San Francisco Tape Music center, elaborating upon Sender's prior work with Pauline Oliveros at the San Francisco Conservatory of music, where they had assembled a rudimentary electronic music studio and presented a successful series of concerts that challenged prevalent doctrinal orthodoxies in experimental music by featuring electronic music from the major European studios of the day alongside new composed works and improvisations by emerging Bay Area artists. Now, free for the time being from the constraints of institutional affiliation, Subotnick, Sender, and Oliveros, who rejoined the project after a year overseas, maintained a policy of open studio access, an emphasis on intermedia collaboration, and a willingness to engage substantively with the nascent counterculture as they sought to develop a new model for an experimental arts center. Sender, writing in 1964, evokes the prevailing zeitgeist:

*I would like to see the center become a community-sponsored composer's guild, which would offer the young composer a place to work, to perform, to come into contact with others in his field, all away from an institutional environment. Each composer would, through his contact with the center, be encouraged to fulfill his own musical needs and develop his own personal language. He would have the advantage*

*and support of all the facilities of the center, for rehearsals and performances of his music, for contact with other musicians and composers, [and] for work in the electronic music studios. He would be encouraged to involve himself in the musical life of the community-at-large. The community in turn would be offered the services of the center as a music-producing agency for films, for plays, for churches, and [for] schools. Such a program, carried through in detail, could produce a revolution. It would, I believe, in five years time, create a new cultural environment in at least our local area.*  
(Bernstein 33-34)

This ethos was to pay dividends in a variety of ways, as the Center produced increasingly ambitious concerts and other programs—including a three-day festival in which David Tudor joined a revolving cast of local luminaries to perform works by Cage, Lucier, Ichiyanagi, Brecht, and Oliveros, attracted international artists-in-residence, and commissioned significant new works, such as Terry Riley's *In C*. Perhaps the most crucial effect it would have on Subotnick's later work, however, occurred in 1963, when Don Buchla, then an itinerant physicist and new music aficionado requested a tour of the studio following a concert and began to talk shop. Buchla, it turned out, had both the technical brilliance and the artistic insight to bring Subotnick's ideal of "music as a studio art" tantalizingly close to earth. He began meeting with Subotnick and Sender to discuss their ideas for a new technological approach to electronic music that would collapse the

distinctions between studio and instrument, as well as between composer and performer, turning the classical electronic music studio paradigm—which was expensive, cumbersome, and premised on an authoritarian division of labor—on its ear. Subotnick recalls that:

*...[a] number of meetings with Don, Ramon, and me occurred, during which we spoke of our musical needs. We wanted to be able to control amplitude and frequency, etc. I used the Boulez 'Le marteau sans maitre (1953-55)' first page as an example. I would imagine patching the Boulez and see something was missing and we would add another knob." (Bernstein 166)*

The fruit of this collaboration was the Buchla 100 Modular Electronic Music System, delivered to the Tape Music Center in late 1964 and demonstrated for the public shortly thereafter. At the heart of Buchla's invention was the idea of *voltage control* (developed concurrently by Robert Moog in New York), whereby any musical parameter such as the frequency or timbre of an oscillator, the tempo of a rhythmic sequence, or the gain of an amplifier could be linked via the ubiquitous patch cable to any other. If this sounds quaint in hindsight, it's worth remembering that up to this point, electronic music had mostly been made with bulky, vacuum tube-powered test equipment and meticulous editing; a continuous change in pitch, for example, resulted from one's assistant literally turning a knob as the tape rolled, while a discrete change required a

precisely executed splice. Don Buchla provided a colorful description of the status quo, remarking that:

*Voltage control was the new important aspect. If you didn't have voltage control, you couldn't make an oscillator jump instantaneously to different frequencies. You had to turn a knob, and the alternative was to make a tape of it and cut the tape. I visited this one day at Princeton laboratory. In fact...all three or four of their original studios, and they had reels and reels of tape across the top, and if you wanted half a second of E flat, you'd chop off a section of E flat. It'd be about that long, and they did this thing called intricate taping and assemblage of little pieces of tape and made quite a few compositions from this extra tape that was already pre-recorded at certain very precise frequencies. These pieces were very much in tune because they used laboratory sine wave oscillators to make a tape full of C sharp or something. (RBMA)*

Whereas, at the Tape Music Center, they had something very different in mind, according to Subotnick:

*Our idea was to build the black box that would be a palette for composers in their homes. It would be their studio. Like we now have. The idea was to design it so that it was like an analog computer. It was not a musical instrument but it was modular. The idea, for instance, of the envelope generator was not to produce the loudness of the note but rather to*

*produce a control voltage that was changing in time that you could use to pan things across the room to change filters, well at the time there weren't any filters but to change pitches, to change pulsations and speed and things of that sort. That was the concept. (Vasulka 4)*

With voltage control, the size of the electronic music studio and the number of hands required to operate it shrunk dramatically, as the amount of sonic intricacy that could be achieved in real time increased at least as much. The appeal was clear, and early adopters of the System included David Tudor, and Vladimir Ussachevsky, whose enthusiasm was apparently not unqualified, Buchla recalls:

*[They] took three of my synthesizers and made identical labs out of them for the graduates, so one could move from one lab to the other and find an identical array of equipment. With one exception, one lab was reserved for faculty and graduate students and the others undergraduates could come into. But Vladimir Ussachevsky covered one of the modules...and that was the big random voltage source. The "source of uncertainty", as they called it then, and it made white noise and random voltages in truly complex ways. But he didn't want any randomness in the music from the grad students and often the undergrad students, so he taped that over so they couldn't get at it. (RBMA)*

This anecdote underscores one of the most fascinating and little-discussed aspects of the Buchla System; while its designers were conversant in the formal argot of post-Webernian serialism that dominated academic composition at the time, they were fundamentally nondogmatic in their outlook (perhaps as a consequence of what was considered at the time to be the relative cultural isolation of the west coast) and equally influenced by other intellectual currents of the moment, including the utopian anarchism of John Cage, the hands-on live electronics wrangling of David Tudor, and the posthumanism of Marshall McLuhan. As a result, the Modular Electronic Music System contained at once (and often within the same individual module) a serialist's dream laboratory of infinitely malleable data sets and timbral and structural resources sufficient to spur the pursuit of *klangfarbenmelodie* to new heights, and a Pandora's box of resources for transcending this compositional orthodoxy, including generalized performance controllers that could be used with no recourse to 12-tone equal temperament, sequencers that lent themselves to the production of hypnotic ostinati, rich and nuanced resources for working with indeterminacy, and an ethos of flexible interconnection that called out for artists to work across old and new media.

Now, the composer was free to work alone if desired, or in newly open-ended and intersubjective ways with dancers, instrumentalists, and visual artists, to bring the resources of the studio to the stage, and to enter into an unprecedented range of collaborations far outside the ivory tower, and no one exploited these opportunities with so much zeal as

Morton Subotnick. Indeed, it is a rare thing to confront the example of an artist whose mature style evolved in so thorough a symbiotic relationship with his tools.

In 1966, as the Tape Music Center was preparing to move to Mills College (where it persists to this day in the form of the Center for Contemporary Music) as a precondition of a transformative grant from the Rockefeller Foundation, who had previously declined to fund their efforts on the grounds that there would never be enough interest in electronic music to support two North American studios, Subotnick, with a new Buchla 100 in tow, relocated to New York to continue his collaboration with Herb Blau's Actor's Workshop, which became the Repertory Theater of Lincoln Center, and to accept a part-time teaching appointment at NYU's Tisch School of the Arts.

To say that he used the resources of his new position cannily would be an understatement; Subotnick brokered an arrangement with NYU whereby in exchange for his teaching one course per semester, he would be provided with an off-campus studio, which would adhere to the Tape Music Center model of community access and serve as a locus of free educational programming, to be undertaken in cooperation with area secondary schools. Robert J. Gluck writes that this studio, which was housed above a theater on Bleecker Street:

*...welcomed any who were interested in working, and it attracted a remarkable group of composers. Centered around one of the first Buchla synthesizers,*

*the studio, home to New York University's Intermedia Program, witnessed some of the earliest work in minimalism and drone music by Charlemagne Palestine, Rhys Chatham, Eliane Radigue, Ingram Marshall, and others. Maryanne Amacher was involved in early explorations into sound and perception. Serge Tcherepnin began to develop circuitry that pointed to his design of the Serge synthesizer after he, along with some of the others moved to the California Institute of the Arts. Other composers who cultivated their craft in Subotnick's studio and its successor 'Composers Workshop', also at NYU, included Michael Czajkowski, David Rosenboom, Brian Fennelly, Laurie Spiegel, William Bolcom, and Bea Witkin. Mort Subotnick recalls: 'I needed help in the studio and Charlemagne Palestine and Ingram Marshall arrived and became my assistants, just as I use student assistants now. Since there was no other electronic music studio around where people could just work, I offered them some time in the studio in exchange for doing work [for me. For instance]...several of the people did some editing on the commercials I was doing at the time. The studio functioned in a loose way like a kind of collective.' It had a great impact on its participants. Maryanne Amacher remembers the studio as 'a fabulous [and...] open place that worked out just beautifully. People would just come there.' Ingram Marshall adds: 'It was amazing.' (Gluck 1-2)*

The Seth Man offers an equally compelling story:

*Through the Intermedia Program, Subotnick would be introduced to other kindred spirits drawn by the allure of the Buchla's raging textural and tonal possibilities; one of whom was academic music scholar and educator, Michael Czajkowski. With an extensively trained background that included completion of several stages of conservatory training and music studies focusing on theory and composition, Czajkowski's involvement in NYU's Intermedia Program led to performances of incidental electronic music at The Electric Circus children's theatre which continued his education as both pupil and teacher within the context of the Buchla. On such occasions he would assemble a group of children into a circle and hand one of them a banana plug running from the Buchla containing a -12v dc...control voltage. After handing the last child in the circle a second banana plug, Czajkowski then instructed everyone to join hands and then to begin varying the pressure of their grasps. This caused the voltage heading back into the Buchla to fluctuate, resulting in producing a wild profusion of sounds that would change the signal's volume, pitch and pulse—not to mention causing instantaneous reactions of delight from his young 'charges' (Seth Man)*

Clearly, the Bleecker Street studio was already a thriving atelier when in 1967, the final piece of the “music as a studio art” puzzle wandered through the door at around two

in the morning. An employee of Nonesuch Records offered Subotnick a commission to create a work expressly for the phonographic medium—a prospect without precedent at the time. The resulting work, *Silver Apples of the Moon*, afforded the opportunity to address a rich network of pragmatic and philosophical concerns simultaneously, as Subotnick has noted repeatedly in writing and conversation:

*[I] had the idea that there was a potential to make a new kind of chamber music. In the 19th century people all had pianos. Sheet music was major business and it made a lot of money due to the fact that people were literate and able to read music. In the 20th century we don't have that and one of the reasons is that we have records. Something is missing: it's the active musical aspect - getting in there and being able to read the music - that's what's missing. I've never been one to think that we should go back to the piano, rather we've moved beyond it. The question is: what needs to happen? (Goldsmith)*

*The recording industry has the potential to satisfy the needs of twentieth-century music far better than the concert hall, even if the concert hall suddenly reformed. Generally, the extra time spent in preparation for a recording, and the editing done after taping, means that more and more, recorded performances are at least accurate if not inspired. The record can be listened-to over and over again and can economically reach more people with*

*greater ease and without having to accommodate an audience with mixed taste. It is my opinion that the recording, although it lacks the spontaneity of live performance, satisfies so many of the joint needs and desires of the audience and composer that it is as close to an ideal medium for new music as the parlor was for chamber music. (Subotnick 110)*

*At the time I was working on what I consider to be "studio art." I was trying to create what was particular to the new way of working in one studio—to create a complete piece, ready to be played by anyone. When you finished it was not going to be interpreted by a performer. I knew this was chamber music of some sort, because it was not public in the sense that it was going to be performed anywhere. It would exist on a record. My approach to composition was to go into my studio...six days a week, twelve hours a day, and simply create. All the works somehow came together through editing and splicing and thinking and then I would have a piece that was that year's work. That is the way Silver Apples of the Moon...[was] realized. (Roads 13)*

*Silver Apples* was also a surprise commercial success (at least, for a piece of nominally academic composition), proving the viability of the phonographic commission model and signaling a cultural shift not only in the production of electronic music, but in its consumption as well:

*It's difficult to imagine now, with electronic music surrounding us, what a brave new world Silver Apples of the Moon seemed to open up. Before that, electronic music was something painstakingly put together with tiny bits of tape spliced together on splicing blocks by professors working in electronic studios in the basements of universities. Suddenly, Subotnick was producing record-length works with a wide-ranging palette of sounds never heard before. Electronic music was no longer just a spooky concoction of bleeps and bleeps. It growled, it rumbled, it chirped, it could slowly transform its textures at a leisurely, symphonic pace. And Subotnick, who has rarely done anything in his life that he wasn't the first to do, embarked on a series of groundbreaking recordings: *The Wild Bull* in 1968, *Touch* in 1969, *Sidewinder* in 1971, *Four Butterflies* in 1973. For once, instead of using recordings as documents of live performance, a composer was producing music intended to be listened to on a home stereo. (Gann)*

As Gann recounts above, *Silver Apples* was to be the first of a string of seven major works for the LP, culminating in 1978's *A Sky of Cloudless Sulphur*. The third piece in this series was *Touch*, a four-channel composition with which Columbia Records launched its ultimately ill-fated foray into the quadrophonic LP format. Subotnick recalls that:

*...Touch...took the form of the long-play (LP) record:...side one and side two. ... In Touch...side*

*one was essentially an inside-out version of side two. Side one goes fast-slow-fast; the other side goes slow-fast-slow. The idea came to me to take the materials and somehow expand them according to this structure. I had a mystical view of the record, like it had some kind of spiritual force and was very magical. I always thought I was in the 29th century when you put this record on and like in the film Forbidden Planet the entire front part of your living room lights up with sound. The spirit of the artist is in that record. Turning over the record was going inside another part of the being. The other aspect of Touch was that the word Touch itself had terrific connotations. It had the idea of touching and not touching, of becoming close and not becoming close, making contact with people and not making contact with people, and the word had a three-part form: t-ou-ch. It has the sibilance of the 'ch,' the vowel 'ou,' and the striking quality of 't.' So one side is 't-ou-ch,' and the other side puts 't' in the middle. All the things that touch meant gradually became the piece. (Roads 13)*

While the connotations of his chosen title and the physical constraints of the chosen medium were undoubtedly valuable heuristics for Subotnick in the creation of the work itself, they also have far-reaching implications for subsequent critical analysis. One could, for example, describe the production of the Columbia LP as a chain of tactile encounters: Subotnick, in his Bleecker Street studio, touches the controls of his Buchla System (perhaps even

the aptly named “Touch-Controlled Voltage Source” module); a tape head touches the master tape; that signal inscribed on that tape drives a cutting stylus, which touches a reference lacquer in a mastering studio; at a pressing plant, that lacquer touches the nickel that flows through its grooves to form the plates which will touch molten vinyl and transform it into LPs, which in turn will be touched by the stylus of the listener’s turntable as she encounters the work itself. *Touch*, as a work of studio art will then invite her to sit where Subotnick sat and to hear the piece as he heard it in his studio, echoing the promise of the painting, sculpture, or other work in the plastic arts which offers to the subject the ability to stand *where the artist stood* in aesthetic contemplation.

*Touch*, then, is a work that contains within itself both the essence of Subotnick’s ideal of “music as a studio art” and of the phonographic experience as such. Per the composer:

*Creating electronic music that ends up as a recording...implies a whole new definition of what music is, and what a record is. Pick up a three-buck LP of one of my pieces. What you've got isn't a recording of someone's performance; it's the work itself, unadulterated, untouched by human hands until you tear off the wrapper. (Rich)*

Clearly, there is a sense in which *Touch* is relatively unmediated, compared with conventional concert music or a phonographic representation thereof, but in attaining this status, it lays bare the essential mediation inherent in the

experience of listening to a record—a commodity suffused with and made potent by a fantasy of collapsing space, time, and identity through technological means:

*What do we give up to "get" the record? We gain the ability for sound to travel beyond its acoustic means, for it to replicate, disperse, form connections with memory and desire, and even suggest communities on the condition that we accept that the record is always a placeholder, a nonsite, a stand-in. The record is undecidable, our claim to it a leap of faith, because in order to gain it, we must already have renounced it. It can be "here," an object among all our other objects, ready for use, because we must accept that it is "happening" elsewhere....*

*The recorded object is nothing more than our temporary window on a mythic site of perfect sound forever. The record asks that we grant through our fantasy of it that it describes a holistic space, that there is a whole where there are really only fragments - shards of actions (performances) with diverse provenance. It is a phantasmagoria in every sense of the word - a commodity that obscures the traces of its production, an order of reality produced through the complete penetration of reality by technology, and a dream-stage on which we confront the momentum of power in the guise of our own reflection. (Madak 1-2)*

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