David Tudor and The Occult Passage of Music

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My talk today will discuss Tudor's life-long commitment to the teachings of Rudolf Steiner. I focus especially on the peculiar nature of this commitment, for Tudor's involvement in Anthroposophy was anything but straightforward.

But first, let me briefly talk about who David Tudor was and what he did since I am sure many people here have never heard of him or his music. Tudor was born in Philadelphia in 1926—a year after Rudolf Steiner passed away. He started his career very young, first as a prodigious organist, then turning to the piano when he was 18-years old. From 1950, he became active in New York as a virtuosic pianist of experimental and avant-garde music, working closely with prominent composers such as Morton Feldman, Christian Wolff, Earle Brown, Karlheinz Stockhausen, and most notably, John Cage. Tudor's ability on the piano was so exceptional that many of these composers wrote not only for the piano but specifically for David Tudor. His interest and genius in solving puzzles also triggered the development of graphic notation, which required the performer—meaning Tudor—to prepare performance scores by engaging in a process of deciphering the unconventional graphics for each performance. Curiously, Tudor would call these scores "materials"—a term that I will come back to later on. In this way, Tudor became a key figure in the development of "indeterminacy" in music, a term used to describe the status of works that are composed but do not fully determine the particular sonic outcome of each performance. Composers would let Tudor make that determination. Let me play a recording of Tudor performing *Intersection 3* by Morton Feldman from 1953. [PLAY]

From 1958 onward, Tudor started implementing electronic amplification into his piano, in part because he was tired and bored of performing the same kind of piano music that composers around the world were sending him after his reputation as the most brilliant pianist of his generation was well established. Although these scores were by no means easy to play, they no longer posed a challenge for Tudor. So he decided to challenge his own ability at the piano by making the instrument itself unpredictable through the use of electronics. In other words, Tudor sought to implement indeterminacy within the instrument itself.

These attempts to expand the piano using electronics resulted in transforming the very nature of the instrument. A piano usually makes sound through a percussive mechanism where the keyboard is used to control the hammer which strikes the strings inside. However, electronic amplification brought to the fore the phenomenon of acoustic feedback between the microphones and loudspeakers, thereby converting the piano into a resonance chamber. I will play a recording of *Variations II*, a graphic score piece made by John Cage in 1961 and performed by Tudor on an amplified piano that he assembled together. Because the piano was now a resonance chamber, the primary interface shifted from the keyboard to the entire body of the instrument. As a result, the nature of the sound produced also changed from a rapid, rhythmic succession of discrete notes, to bursts of continuous tone which could potentially go on forever if not regulated in one way or another. And Tudor would deliberately devise the set-up of microphones, amplifiers, and loudspeakers so that the sheer complexity of the circuitry based on parallel channels of feedback exceeded the capacity of the human performer to fully predict or control its behavior. As Tudor described the situation referring to his realization of *Variations II*: "you could only hope to *influence* the instrument."

Interestingly, the amplification of piano also brought Tudor back to the world of organ, an instrument which generates sound by using the keys on the manual to open a valve which lets pressurized air go through a pipe. In other words, unlike the piano, the essence of control in an organ is *gating*—the blocking and release—of potential sounds, which enables it to do something the piano could not: prolong a sound indefinitely for as long as the key remains depressed. From this perspective it is significant that around the same time he started amplifying the piano, Tudor also became intrigued and began learning another new instrument whose physical nature allowed its notes to continue indefinitely without the aid of electronics: the bandoneon, the German-born concertina (similar to the accordion) which is known for its use in Argentinian tango music. As a free-reed aerophone that produces sound by controlling the flow of pressurized air through the reeds by the pushing and pulling of bellows, the bandoneon was essentially a portable organ.

Throughout the 1960s Tudor delved more and more into the world of electronics, creating his own modular electronic instruments of various functions which would be connected in chains to form complex feedback networks. Once activated, a signal would be distributed throughout the network, passing through various gain stages, filters, and modulators, before being fed back to repeat the process over and over again. The output sounds could then be fed back once more into the electronic circuitry either through microphones or through Tudor the performer who would decide on his next maneuver based on what entered his ears.

In this way, Tudor placed himself as a component within the network of modular instruments. The

indeterminate relationship between Tudor and his modular instruments, based not on control but influence—"you could only hope to *influence* the instrument"— was also established accordingly between the instruments themselves. Neglecting the standard practice in the building of modular synthesizers to match the voltage or impedance between components to ensure the clarity of signals, Tudor deliberately mismatched components to obtain additional layers of noise. The resulting relationship between components was described using the same verb used to depict his relationship to instruments: "I found out that if the components don't match, then the one component is able to *influence* the next so that signals are created at many points within the circuit." Once activated, the very instability of partial connections within the feedback network incited a variety of oscillations, triggering a cascade of signals and signal modulations. The composition, in other words, composed itself from within.

Despite his irrefutable status as the most important performer of experimental and avant-garde music, and the wide influence of his electronic music on later generations, there has been no research that brings together the entirety of Tudor's output until now. John Holzaepfel, in particular, has done a tremendous job of analyzing Tudor's piano realization of other composer's works in extreme detail. But the necessary work of extending this accomplishment to what Tudor did with electronics has not been pursued by other scholars. The existing study of Tudor's electronic music, mostly conducted by Matt Rogalsky, is important, yet focuses on a single work called *Rainforest*. I am obviously in great debt to these previous studies, but it was also obvious to me that there was a lacuna in the scholarship; what needed to be established was a research program that could lead one through the entirety of Tudor's career in a coherent manner. The difficulty can be summarized into four issues: 1. Tudor constantly moved from one instrument to another, shifting his domain and nature of activity accordingly—from the organ to piano, to amplified piano, to bandoneon, and to electronics—making it difficult to establish a coherent perspective from which to understand the entirety of his trajectory. 2. The nature of Tudor's music defies conventional musicological conceptualization. The standard dichotomies of "composer-performer" "composition-improvisation" fail to grasp what he was doing. 3. Tudor did not write or speak much about what he was doing, so there is a lack of linguistic or conceptual description—the material that musicologists usually rely on—of his music. 4. What can be studied instead are the instruments Tudor left and textual documentation related to them. But in addition to the lack of conceptual tools, the usual training of musicologists does not involve learning the necessary technical tools to read, let alone analyze and interpret, these extant materials related to electronics. Simply put, scholars often find it difficult to trace circuits, read schematics or understand the workings of resistors, capacitors, diodes, or transistors, which dominate the bulk of Tudor's archived materials.

The last two issues are of technical nature, which means that there is a way to solve the problem—what is

required, simply put, is more work from the scholar. The more difficult problem lies in the first two issues, for they require research to do away with its own implicit conceptual premises—they demand not simply more work but a different way of working. To solve this conundrum, in my research I have developed a method where instead of trying to apply the standard tools of musicology—conceptual and technical—to examine what Tudor did, I attempt to extract tools and methods from Tudor's own practice which are then applied to analyze what he was doing. Through this circular approach, itself based on a feedback mechanism where what the research produces through study is returned to the drive the study forward, I have been able to establish a focal point from which to view Tudor's activities in a coherent manner—namely, to see what Tudor did through his engagement with the material specificity of each musical instrument. But although this perspective allows me to, for instance, bracket out the conceptual filters of "composer/performer" in musicology which have long impeded substantial analysis of what Tudor was doing, and study the nature of his instruments and music in more depth, the story can not end there. For Tudor's inquiry into the physical nature of musical instruments—both acoustic and electronic—was itself rooted in a *metaphysical* concern. In an interview conducted in 1995, a year before his death, Tudor admitted that "part of my interest in life is spiritual endeavors, which I don't speak about because I don't want them to be identified." And for Tudor, such "spiritual endeavors" were grounded prominently on a single source: Anthroposophy, and the teachings of Rudolf Steiner.

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Tudor became an official member of the Anthroposophical Society in July 1957, but his relationship to Steiner's teachings seems to go further back than that. From very early on, he was surrounded by Anthroposophists: his sister Joy seems to have been an avid reader of Steiner, and the classic saxophonist Sigurd Rascher who Tudor worked with intensively in the late 1940s and early 1950s—before initiating his collaboration with John Cage and others—was an Anthroposophist whose parents were close friends with Steiner, and who himself was a graduate of the First Waldorf School in Stuttgart, Germany. The poet M.C. Richards, who Tudor was married to in the 1950s, became a follower of Steiner's teachings through Tudor's influence.

Tudor's archive is filled with handwritten or typed copies of Steiner's texts—which I will return to shortly; letters sent back home to M.C. Richards record his frequent visits to Dornach when he was touring in Europe. His neighbor and collaborator John Driscoll remembered how he drove Tudor once every week or so in the 1970s to meetings of the Anthroposophical Society. Tudor would spend a couple of hours there, after which John would pick him up. According to John, Tudor never told him what

happened in the meetings. It was all a mysterious affair.

In this way, Tudor's life-long devotion to Anthroposophy is also shrouded in a blanket of secrecy. As he confessed, "I don't want them to be identified." Consequently, he kept a double life. As Tudor's fame grew, presenters invited him to give concerts all over the world. But especially in Europe, he was occasionally asked to include in his repertoire at least a number of classical music works. Tudor's customary answer to this was that it was impossible: "It has been too difficult for me to maintain a repertoire of classical music […] I play classical music only upon special request." However, concert programs and correspondences found among his papers reveal that around the same time, Tudor was performing precisely such music from previous centuries—Bach, Beethoven, Handel, etc—that he had claimed to have denounced, at the Anthroposophical Society concerts. He also taught and attended the Summer Schools in Spring Valley, New York, and continued to accompany Rascher at concerts of the Anthroposophical Society in the 1960s.

These testimonies and evidence reveal Tudor's long-term involvement in Anthroposophy. But while the *fact* of the connection is clear, his reticence on the matter has kept the *nature* of connection unclear. Perhaps the most enigmatic aspect of this connection is the seeming discrepancy between the very sort of music Tudor performed and those preferred and promoted by Steiner and the Anthroposophical Society. As one correspondent from the Anthroposophical Society wrote to Tudor in 1962, referring to a then-recent article in Harper's Magazine which focused on his activities as a pianist of avant-garde music: "I think there's nothing in it for me to quote in our announcement—for <u>our</u> kind of people, it would be wasted on them." The very reason of Tudor's double life stems from this gap between the kind of music he was required to perform in the Anthroposophical Society concerts and the kind he chose to perform and later compose on his own.

Since Tudor always claimed to derive the nature of his music from the nature of his instruments, let us focus on instrumentation. In this regard, Tudor proved himself to be an exceptionally *bad* student of Anthroposophy: his instruments of choice did not resonate at all with Steiner's view of things. To start with, the piano was a terrible choice. In *The Inner Nature of Music and the Experience of Tone*, which we know Tudor read, we find Steiner's blatant attack on the instrument Tudor exerted his virtuosity.

> *An orchestra is an image of man; it must not include a piano, however. Why is that? The musical instruments are derived from the spiritual world; the piano, however, in which the tones are abstractly lined up next to each other, is created only in the physical world by man. All instruments like the flute or violin originate musically from the higher world. A piano is like the Philistine who no longer contains within him the higher human being. The piano is the Philistine instrument. It is fortunate that there is such an instrument, or else the Philistine would have no*

> *music at all. The piano arises out of a materialistic experience of music. It is therefore the instrument that can be used most conveniently to evoke the musical element within the material realm. (…) Naturally, the piano is a beneficial instrument—otherwise, we would have to rely from the beginning on the spiritual in musical instruction in our materialistic age—but it is the one instrument that actually, in a musical sense, must be overcome. Man must get away from the impressions of the piano if he wishes to experience the actual musical element.*

As I described earlier, Tudor did "get away from the impressions of the piano" in the late 1950s, but the electronic instruments he subsequently turned to weren't in any way a better choice. If anything, the music of machines was worse than the piano in its connection to materialism. As Marie Steiner, the wife of Rudolf Steiner, fiercely claimed in the introduction to her husband's book *Eurhythmy as Visible Speech*—another book we know Tudor read—whereas the piano was in some sense beneficial, mechanical music was downright damaging.

> *…this mechanical, noisy music, which rattles from all the gramophones, from the wireless, from the pianolas, and which even in many of the best London theaters has taken the place of the orchestra. The demons of machinery here find means of access; they gain a hold on the human being through his movement, through his vitality. They do not only influence his brain, but enters into this externalizing of that which should remain as inner mood of the soul. The mechanical musical instruments exercise their powerful, soul-deadening forces, doing away with all atmosphere and feeling.*

Steiner's texts, according to Marie Steiner, were written precisely to counter the dangers of mechanical music: *He sounded the awakening call which can free humanity from the dangers of becoming animalized, stupefied and mechanized*. Just in terms of his selection of instruments, then, Tudor seems to have been completely deaf to this awakening call. So the question becomes: what on earth was Tudor reading in Steiner's texts? Or, since the fissure between what Steiner preached and Tudor practiced is apparent enough, perhaps the more proper question would be: *Why and how did Tudor read Steiner against the grain?* Interestingly, this last question also touches upon the issue of method concerning my circular endeavor to *read* the nature of what Tudor was doing by taking cues from how Tudor read others. On several occasions, Steiner likened the act of reading to that of playing a musical instrument. In *The Gospel of St. John*—which I learned yesterday from Tinken that Steiner delivered here in Oslo almost exactly 100 years ago, though not in this room—an analogy is set between the reader's process of mastering the text and the virtuosic performance of a given musical composition: "If a reader takes this book […] in the way a virtuoso playing a composition on the piano relates to its composer, reproducing the whole piece out of himself, the book's organically evolved thought sequence will bring about a high

degree of catharsis."

Now Tudor was known for his uncanny ability to see the nature of any given thing. He often referred to his music as arising from the nature of the "materials"—instrument and/or score—used. But he employed a peculiar method to achieve this purpose: to treat the material against the grain. For instance, Tudor once explained his approach to the piano as follows: "Now my pianistic method involves (usually) doing things with a precise control, as fast as this control can be exercised; and at that point to push beyond into the area where control might be lost (or forgotten) and where the act of playing becomes a 'dangerous' matter." This approach was carried over to his live-electronic works as well, where Tudor adhered to a seemingly contradictory method to reveal the "nature" of his instruments: to use them in ways for which they were not intended. As John Driscoll remembered: "David Tudor would often use inputs as an output. Outputs would also be used as inputs. It rarely mattered to David what the original intention of the circuit was…" The implication here is that the nature of the material used to make music—corresponding, in Steiner's own analogy, to the nature of a book—is not a mere given but something that revealed itself only when the material was "pushed" beyond its comfort zone, so to speak. Nature only reveals itself in its use—misuse or even abuse.

The plot thickens, however, upon the realization that Tudor probably derived this very approach from his reading of Steiner. In the *Wonders of the World*, for instance, Steiner claimed that every process in the world must be seen as an expression of the spirit inherent therein. Anthroposophy was a spiritual endeavor through which one would become capable of seeing the inner nature of things that usually lay hidden to the common view. In order to attain this revelation, observation had to pierce through and beyond the normal appearance of things. It is easy to see how this Anthroposophical view of hidden or occult nature influenced Tudor's general approach to musical instruments and thus music. In other words, if Tudor read Steiner's writings on musical instruments against their grain, he might have been applying Steiner's own method to Steiner's own books to reveal *their* hidden nature—a virtuosic performance of Steiner as a musical score, to use again Steiner's own analogy.

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In order to survey this occult nature of Steiner's approach to musical instruments, let us examine what Tudor *actually* read. There is a substantial amount of materials related to Anthroposophy in Tudor's archive, extending from Bio-Dynamics periodicals, Anthroposophic News Sheets, printed copies of Steiner's lectures, flyers of Eurhythmy concerts, library slips of books Tudor borrowed, brochures related to Steiner, and many more. The surviving notes Tudor took from his reading of Steiner also show a wide

range of interest. Just to list up the titles of books he quoted from, that I have been able to identify: *The World of Senses and the World of the Spirit*, *The Spiritual Hierarchies*, *Foundation Stone Meditations*, *The Mantric Proverbs*, *Guidance in Esoteric Training*, *Planetary Evolution of the Arts*, *Nine Lectures on Bees*, *Calendar of the Soul*, *The Course of My Life*, and so on.

Among this diverse miscellany, several texts related to sound and listening seem to have naturally captivated Tudor: *The Inner Nature of Music and the Experience of Tone*, whose first part is also known as *The Occult Basis of Music*; *Eurhythmy as Visible Speech* which he recommended to MC Richards; and a lecture entitled *The Ear*, of which there is the original publication in the Anthroposophical Movement journal, a type-out copy of the entire lecture, and notes that Tudor took from his reading. Taken together, all these texts outline Steiner's idiosyncratic view on the nature of listening and music based on the notion of "Tone." Steiner presents the difference between "sound" as a vibration of air and "tone" as a reflection of sound that pertained to the inner experience of the listener: "The air's vibrations are only the outer expression of the tone. Its inner essence is largely an etheric element." The soul and the inmost life of things are expressed only in tone, and not sound. And the physicality of music was to be pursued in order to ultimately attain the metaphysical domain of spirituality that tones convey: "Physical music is but a reflection of the spiritual reality. A tone lies at the foundation of everything in the physical world." The ear, from this perspective, was an organ that separated the air from tone itself: "The ear is actually the organ that reflects back inside us the tone living in the air, but does so in a way that separates it from the element of air. […] The ear is a reflection instrument for our feeling of tone." Tudor seems to have taken this teaching to heart. In his notes, the distinction between sounds and tones appears repeatedly: "air formation of the Tone (body of tone) (music's life element) air is resistance medium which supports tone—the tone intrudes itself forcibly upon the air & the air gives tone the possibility of resting upon it. tone itself is a spiritual thing."

Now, what is interesting is that Steiner based this spiritual nature of tone on a careful inspection of the physiological nature of the ear. The process of listening goes through a series of *transductions*—conversion of one form of energy into another: the airwaves that enter the ear canal first vibrate the eardrum; this mechanical vibration then moves three small bones in the middle ear known as ossicles, at the end of which vibration is transduced into movement of fluid filling the cochlea, a spiral-shaped tube that forms the inner ear; this fluid wave then triggers sensory hair cells that cover the entire length of the cochlea causing a transduction of movement into electrical pulse, which is sent to the brain. Steiner saw great significance on the fact that the inner ear is placed in a fluid, seeing its purpose as protecting the ear from the force of gravity. This exception from entering the domain of gravity symbolized the ear's detachment from earthly existence and integration into the spiritual world. In

Steiner's words, "Truly the ear is no earthly citizen; in all its organization it is a citizen of the Spiritual world."

But the ear as an instrument was still not enough to account for the experience of music. This required coupling of another mechanism in the human body to the process of listening. Steiner identified this in the rhythmic rising and falling of the cerebrospinal fluid caused by respiration. When we breathe out, the cerebrospinal fluid in the brain descends through the spinal column to the diaphragm area, and when we breathe in, the same fluid is pushed back to the brain. According to Steiner, the experience of music arises when this inner rhythm of respiratory movement reaches the inner ear and brain, meeting the output of the ear and the nervous system. He again resorted to the metaphor of "musical instrument" to account for this mechanism which generates inner experience: "What streams in through the ear as tone, the impressions of sound that live in us, becomes music as it meets the inner music that comes about because our whole organism is a remarkable musical instrument." It is important to note that this operation of the human body as a musical instrument is what fundamentally sustains and conditions the spiritual experience of music. Tudor certainly was committed to the spiritual dimension of music, or what Steiner addressed as "the occult basis of music." In an undated draft of a letter addressed to a friend, Tudor wrote: "For me music exists as a spiritual reality which will continue to exist after every composer and every page of notes and dynamics are destroyed, and every performer must struggle to make the positive facts of this reality audible to a listener. […] Music must be a direct spiritual experience !!"

But what is interesting is not the question of whether or not the ear is actually a spiritual organ or music actually affords a direct spiritual experience. It is not *what* Steiner explained that interests me; it is *how* he explained it: he grounded the spiritual nature of tone in the physical mechanism of the listening organ. Tone and listening did not pertain to the physical world, but the reason they did not, did pertain to the physical world—within the specific, material workings of the ear as a reflection "instrument." So just as much as the physical music was a reflection of the spiritual reality, the direct spiritual experience of music was conditioned by the physical nature of the human body.

In none of his extant notes, Tudor cited Steiner's view on *actual* musical instruments. As we saw earlier with his attack on piano, Steiner tended to regard the physical nature of musical instruments as being encompassed within materialism and sought to regain their spiritual nature. He even came up with a peculiar theory for this purpose: "Musical instruments first came into being as human Imagination; but, with the exception of the piano, not through experiment." Humans then proceeded to give material form to what only existed as imagination. But this only signaled a downfall: the transition into the epoch of materialism, the descent of the musical into physical matter. Tudor seems to have ignored all this as complete nonsense. His reading instead focused solely on Steiner's view on tone and listening which

revolved around the mechanism of the human body as a musical instrument. In this metaphorical use, "musical instrument" addressed the physical-physiological mechanism that gives rise to metaphysical experience; an occult passage mediating the material domain with the spiritual, a transducer of outer and inner worlds. In this sense, Steiner's account of musical instrument as a metaphor stood in strong contrast to his own account of "actual" instruments arrested within the dichotomy of imagination and experiment, and the irreversible downfall from one to the other. Instead, as a metaphor, the nature of musical instrument was neither completely physical nor metaphysical but lay somewhere in between ("meso-physical," so to speak). However, this nature of Steiner's insight into musical instruments, revealed through Tudor's reading, serves to interrogate one of the most fundamental tenets of Steiner's spiritual philosophy. For this, I wish to turn lastly from Tudor's performance of reading Steiner's books to inspect the nature of his performance of musical instruments.

4

Among the composers who worked with him, Tudor's virtuosity generated a peculiar notion that he was an instrument rather than an instrumentalist. "A lot of piano music was written in those years by all of us," Christian Wolff, for instance, recalled, "and it was written precisely for an instrument that one might call David Tudor, if you will." In the first half of the 1950s, however, the imagery of Tudor being an instrument was rooted in his ability to translate materials given to him by composers into a performable score—"his genius for solving puzzles," as Cage summarized. Indeterminacy of performance was in this way correlated to the deliberate ignorance of composers about how Tudor's "virtuosity of mind" operated. The output produced by Tudor was unpredictable because the mechanism that produced it was hidden, occulted.

Towards the end of the decade, as Tudor moved on to implement indeterminacy in the instruments and the time of performance, composers' understanding of Tudor as an instrument also changed accordingly. Indeterminacy was no longer conditioned solely by the process of Tudor's realizations of text hidden to the view of others, but rather by his physical capabilities at, and in relation to, his instrument, which were exposed to plain sight during the performance. In other words, the ignorant perspective conditioning indeterminacy becomes embedded in the relationship *between* instruments—what is occult is how one instrument performs in relation to another. This new understanding of David Tudor as a musical instrument led to a series of theatrical music works in the 1960s, especially for Tudor's newly learned instrument bandoneon, whose portability proved to be ideal for this purpose. Stanley Lunetta's *Piece for Bandoneon and Strings* written in 1966, for instance, turned Tudor into a marionette, operated by three

people.

But one could also say that Tudor always regarded himself as a musical instrument in this sense, even before the composers around him took on that view. If anything, Tudor welcomed that image of him because it was already operative at the core of his own practice. True to the teachings of Steiner, Tudor seems to have regarded the nature of him being an instrumentalist as being a musical instrument himself. When the 18-year old Tudor heard the pianist Irma Wolpe play the piano one evening in 1944, and "immediately and spontaneously decided to become a pianist," she impressed Tudor to no end, "because her piano playing was so dynamic. It was like the opposite [of the] world I knew." But Tudor also used the same adjective to portray the nature of piano itself: "It was a completely different world for me. It was like dynamic impact." So on the one hand, dynamism was certainly what piano-forte, true to its original name, enable direct control of through differences of touch on the keyboard; but on the other, dynamism pertained to Wolpe's specific playing style. This confluence between the instrument and the instrumentalist is resolved through the realization that Tudor's newfound piano teacher had also been an instructor of Eurhythmics, Emile Jaques-Dalcroze's methodology for translating sound into bodily movement and vice versa. There is an obvious resonance that goes beyond the similarity of names with Steiner's Eurhythmy, which was also based on the correspondence between movement and speech or music. In seeking to find a common ground for bodily movement and sound, Dalcroze, like Steiner, had conceived of the human body as a primordial musical instrument. As an instrument, it required tuning—training of bodily *coordination* that served both instrumental skills and perception of music. Thus Irma Wolpe coordinated her physical dynamics on the piano with that of the instrument. Based on this model, the pianism developed by Tudor—I unfortunately have no time to delve into its details tonight—centered around coordinating perception (listening) and movement of his own body as a musical instrument with the mechanism of the piano.

For instance, Tudor developed a technique of controlling rhythm through breathing, mostly inspired by Antonin Artaud's method for training actors described in *Theatre and Its Double*. The few surviving notes Tudor took from his reading of Artaud all concern the issue of breath: "breath in inverse proportion to external expression / every breath has three kinds of time." The preparatory notes for Tudor's piano seminar given in Darmstadt, Germany in 1959 also include a section on the methodology of breathing: "in irregular rhythm no preparation visible in breath / body for rhythm / breath for longer sections." Tudor's distinct approach to the piano in this way consisted of treating his own body as a musical instrument, regulated in part by the respiratory mechanism as Steiner had described.

But Tudor as a musical instrument also did something different, something that never seems to have entered Steiner's reading of musical instruments: because Tudor was a performer and not merely a

listener, his body-as-instrument had to also *coordinate* consistently with another musical instrument, the piano. This coordination between multiple instruments would be pursued more prominently in Tudor's live electronics, where Tudor placed himself as a component within the network of modular electronic instruments that hoped to influence one another, thus establishing a radical equality between himself and his instruments. This equality between Tudor the instrument and his instruments foregrounded by the nature of electronic music serves to turn Steiner's analogy between the human body and musical instruments inside out: if a human can be likened to a musical instrument, then it must be possible for an instrument to be human-like.

Much later in his life, in a workshop held at Mobius Art Center in Boston in 1985, Tudor gave an unusually overt explanation of his learnings from Steiner: "There's only one thing which can change your mind about what music is, and that is if you can make a differentiation between 'tone' and 'sound.' If you can do that, then you have a clue to where the music is. Because 'tone' is something that happens inside you, and 'sound' is something that happens in space. And if you have that differentiation then it will lead somewhere." But the influence ends here. The specific example of just where this differentiation could lead to, which Tudor went on to add, diverted completely from Steiner's teachings: "For instance, that for me is to not use an oscillator, not to depend on montage of prerecorded tape, to find out what the electronic components were doing themselves." This immediate connection between the importance of focusing on tone and the interest in discovering the nature of electronic components may be puzzling, for the former refers to what "happens inside you," whereas the latter to what happens inside "them." To follow the analogy Tudor is making, it is necessary to equate the listener with the instrument: what happens inside a listener must be analogous to what happens inside an instrument.

In Anthroposophy as well as in Eurhythmics, the metaphorical relationship between humans and musical instruments was always one-sided. The former could be likened to the latter, but never the other way around. This was because of the strict division Steiner maintained between human beings and physical objects. As far as anthroposophy was concerned, objects did not have an interior dimension of spirituality, at least not much compared to the humans. But, as we saw, Steiner's own metaphorical use of the term pointed towards the metaphysical (or mesophysical) nature of musical instruments. Tudor's approach thus entailed a reversal of premises. He derived the focus on the spiritual nature of music from Anthroposophy, but sought this in the nature of musical instruments. What is heard as music to the human ear in Tudor's music is the sonic expression of multiple instruments 'influencing' (or, hoping to influence) each other. And we may recall here that the word "influence" originates from the state of being "in flux" discussed in neoplatonism, where it was believed that one object emanated its essence or its nature to another object—so what is "in flux" is the essence of one thing to another. And "occult" was

originally a term that addressed the invisible but material nature of this flow of essences.

Following Tudor's own wording, the action on the receiving end of this chain of influences could be portrayed as 'listening.' The sound produced by a component carries an imprint of its tone, the specific nature of its listening process, which is then heard by another component, and so on. And once this chain of listening was set going, Tudor saw them springing to life: "there is a point where a certain sound-world or a certain color conception can appear, an electronic set up that's hooked together with a certain idea. And all of a sudden you realize that it has a life of its own"—thus musical instruments are endowed with an inner life, a spiritual dimension.

It is important to note, however, that in Tudor's explanation, the instrumental set-up becomes alive *only after* the act of listening takes place. They do not listen because they have a spiritual domain; they appear to have a spiritual domain because they listen. Metaphysical interiority requires physical activation. Only when activated, does a sound produced by an instrument—human or inhuman—bespeaks the spiritual experience of music that took place inside it. And the experience of tone *reflects* this inner experience of another instrument via the ear, the ultimate reflection instrument. Coordinated or networked, the multiplicity of instruments in Tudor's music resounded a lively cacophony of spiritual experiences feeding from one instrument into another—and we also partake in this process as musical instruments, when we lend our ears to experience the tone of how these other instruments listened. So, in order to conclude, I would like to play a segment from a piece Tudor made in 1975, which he considered his most important work and "a direct translation of his mind into music." It is appropriately entitled: *Toneburst*.

[PLAY]