

Interview with Ralph Jones
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JM - Where did the idea for Star Networks At The Singing Point begin? Can you describe the genesis of the idea which led to scoring the piece, building the instrument, and all the other aspects?

RJ - I had arranged for Composers Inside Electronics to give a series of concerts to open the 1978-79 season of The Kitchen in New York City, and had committed myself to doing one of the concerts. I wanted to make a piece for that ensemble' which used the particular skills that the group has, which are actually fairly rare in music -- by which I mean a relatively high degree of understanding of electronics.

I'd been interested for a long time in trying to determine as many compositional aspects of a piece as I could at the level of electronics design. So, I tried to find a way in which to make a potentially collaborative work defined at the circuit design level. Late one night I was leafing through the IEEE Dictionary, and I hit the definition for 'star network', and I loved the sound of the words. I just liked the poetics of it. And it came to me that one could make complexes of star networks that would function in feedback to destabilize oscillating circuits.

JM - Since the title of the piece refers to a generalized circuit design on which you based the work, maybe you can describe what the terms mean.

RJ - Okay. The design is a way of making oscillating circuits - that is signal generators - that are unstable. Most principles for the design of oscillators are directed at making the circuits stable in order to make them useful as test instruments or to make more or less deterministic functions. But I was interested in trying ~~by allowing instability~~ to derive some characters that I thought would be inherent in the circuits' design or in the components used in the circuits. What the score directs a performer to do is to take a high-gain amplifier - like a preamplifier for a microphone, tape head, or phonograph - and a number of passive electronic components, the very simplest types - inductors, capacitors, resistors, transformers of various types; connect the passive components in complexes of interconnected star networks, making a circuit with a lot of nodes at each of which there are at least three branches; then, make feedback through the network around the high-gain amplifier. This produces an oscillator, but it is an oscillator whose frequency-determining network has a whole lot of different paths. It's like a maze, an electronic maze, with a lot of different solutions. Each of those different paths wants to make the oscillator act in a radically different way. So the circuit in essence becomes confused. It's trying to stabilize in one mode or another and it can't achieve that so it flops from one mode to the next to the next, or some combination of them.

JM - I wanted to talk first about the instrument. You've been

involved for a number of years in constructing special electronic equipment for your music, as are other composers, and the SN construction is an instrument, whereas you regard ~~the~~ ^{your} transposing microphone for ultrasound as a tool.¹ Could you describe the difference between the two types of design for you and the impact of this difference in terms of the design process?

RJ - A tool is something that's made to perform a predetermined function; it's made to be used in a specific way, and the degree of accuracy or facility with which it accomplishes that function in a sense reflects the effectiveness of the design of the tool. A tool must be controllable, manipulable. In the case of the transposing microphone, I wanted to get as accurate a reflection of what was happening in the ultrasound world as I could. As it happens, there is some distortion that occurs in the transposition process: what ~~is~~ ^{are} distorted ~~is~~ ^{are} the harmonic intervals or the timbres of the ultrasound, but not the time sense. I have always considered alteration of the time sense of a signal to be a more significant distortion. I was more interested in the time sense of the insect songs, and various sorts of non-biological sources that I uncovered, than I was in an exact reproduction of the harmonic intervals or the melodic contours. What I get is basically an exaggeration of those intervals or contours, which I can accept.

Now, in the case of the instrument in SN: it may be that

'instrument' is not really quite the right word for what one uses to play that piece. I read in Silence a couple days ago, I believe in 'Lecture on Something', a sentence which says something like: 'A technique, in order to be useful, must fail to control the elements which are subjected to it.' I don't know if that's verbatim, but it's the sense of what — he's saying. That kind of summarizes my attitude in making this piece. I want the technique to fail, in a sense, to control those circuit elements. What you have is an instrument that's not used for expressive purposes; it's used to illuminate as many different facets as one can of the results that may be obtained using that circuit design. I think that in order to do that, it's useful for the performer to be confounded in a way. One of the wonderful things about the design is the instability in the resulting sounds, and if the performer has time to try to control those circuits, the instability doesn't come through. Again, I'm interested in the time sense that results. In other words, the instrument is, in a sense, a tool, but the function it's designed to perform is only partially controlled, and the result is substantially, but not totally, indeterminate.

JM - I guess this raises particular questions in terms of the relationship of performance skill with the instrument.

RJ - Well, the piece requires a few skills, one of which is fairly extensive knowledge of circuit design, first of all to understand what the score is asking you to do, and secondly

to find the appropriate components and be able to connect them in order to produce the required result. For example, one real problem in making that instrument is the handling of grounds, how you handle the electrical ground in the circuit that you make. That actually turns out to be a decision that affects the result rather profoundly.

Another type of skill that's needed is a facility in working with electronic components and systems, because, particularly in the case of a solo performance - in which you're asked to operate six networks at once - because in the course of the piece, every time you want to change a sound you have to re-design a circuit. That's actually a pretty complex task. You have to keep track of a number of different impedances at a number of different points, the configuration of six different networks, and so on. You have to be able to make choices quickly in order to get a sound out so that you can evaluate what you've got and perhaps pull another sound out of the texture for retuning. This is another part of the confounding process: there's simply so much to do that you can't stop to think about where it's going.

JM - So, in a certain sense, what's required is a mechanical ability to operate the instrument, making decisions almost unconsciously.

RJ - Well, one skill that's required is purely a mechanical

skill. Another skill that's required is an ability to make musical decisions; that comes out of training and experience. For example, you have to be able to recognize when a sound is tuned according to directions given in the score. But the directions are intentionally vague: basically, all I say is, 'Tune for instability in the oscillations.'

JM - Let's go back and try to distinguish between the general design principles of the instrument - the capabilities any instrument should manifest in order to perform ^{SN} (the piece) - and the specific design of the instrument that you perform on. Could you go into some of the design parameters: how it should be built, and what it should be capable ^{of} in the most general sense?

RJ - What the score instructs a performer to make is in essence what electronics engineers call a breadboard: a device for temporarily connecting components together to form a circuit. Engineers use breadboards all the time to test electronics designs and refine them before actually building more permanent devices. My SN instrument is a rather large, clumsy, and significantly more sculptural breadboard than those that prevail in industry. ~~So~~ In fact, this is a design consideration for the instrument: I say that the components should be visible, and that is ~~partly~~ because a part of the theater of the piece is the look of the components.

So, the most basic design consideration is that you make a breadboard. Specifically how you do that, what method you choose for making connections between components, those things are up to the performer who makes the instrument. And it's intended that each performer make his or her own instrument, in part because every performer will choose a different collection of components; they'll go to different mixes of classes of components and of values. Each will produce different types of sound.

JM - You spoke of the visual qualities which attract you to components. How else are the components you use in your own instrument selected?

RJ - The components that I use I have generally found in places that are known as surplus houses, places that electronics hobbyists frequent mostly because they provide, for those who have no avenue for buying from industrial distributors, sophisticated or unusual parts. Surplus houses carry stock that is generally cast off by industry or by the military. So, you get everything from radar coils, to the simplest components, to entire functional pieces of gear - old radios, all kinds of things. They're like junkshops devoted specifically to electronics. I've always collected from these junkshops - simply because I thought they were beautiful physically, and they never cost too much - [the funny unknown components that I'd find in unlabeled boxes or at the back of shelves] Usually you can't tell what these things were intended to be

used for. You'll find, for example, something that you recognize - if you have some electronics background - as a coil, but it has a number of different connection terminals, and some obscure military part number stamped on it. Beyond that, you can find no specific information about it, and the operator of the shop can't help you either. He'll say, 'Oh, that's a radar coil,' which means nothing. It could be any one in a wide class of components.

JM - Then you were collecting these components before you even conceived of SN?

RJ - Yes, I had a box of them sitting in a corner of my studio, unused. I never knew exactly what I was going to do with them, but I always liked the look of them. When I came on the idea for this piece, it hit me that those were perfect candidates for the passive components that I needed. It's another uncertainty which attracts me, and which I think is useful given the central idea, which is to look at a single design technique from as many vantage points as possible. ~~The performing of the piece is like a process of observation.~~

JM - Can you go a little further on that?

RJ - Okay. The technique is capable of producing a very wide variety of sounds, everything from things that sound like

birds or animals to things that sound like machinery or running water. The sounds are unified by the particular type of instability that they exhibit, and by their source in the single design technique. I think that commonality is perceivable when you listen to the piece, whether or not you know about the design. What I'm interested in, though, is the design itself, and I want to see the results from as many vantage points as I can. That's why I like to use components that I perhaps can't identify, because they do things that, were I to choose only components that I could identify, I would not achieve. That's why I like the performer to be confounded to a degree by the performance task, so that excessive judgement about what's going to be heard doesn't enter into the situation, and you get to see more about results of the technique..

As regards
 JM ~~To talk a little about~~ the visual appearance of the instrument, ~~and~~ you had mentioned the word 'sculpture'. It's ~~actually~~ decidedly a bizarre-looking instrument, especially given developments in electronic technology. It suggests to me, among other things, the gutted insides of an old radio. Could you characterize the varying ^hweights of importance of making an instrument that was, on the one hand, visually interesting *or suggestive* as a piece of sculpture ~~-- a visually suggestive collection of~~ ~~components~~ ^{was} and, on the other hand, logically laid out as an instrument that others perhaps could use?

RJ - I want things to be as obvious as possible. I want a member of the audience to be able to see, as clearly as possible, the performance process. That is a reason why I personally use clip leads in connecting the components. They're large and bulky, you can see them clearly, and they come in a number of colors, enabling me to distinguish one network from another.

JM - That is the function of the color coding?

RJ - Absolutely. At any rate, that is the basic impetus behind making everything seen. I think the appearance of the components themselves is seductive, and can engage the observer, leading them into an examination of what I'm doing. Ancillary to that is just a little self-indulgence: I just like the way they look, and I don't see much reason to hide them. This is an aspect of electronics that I've always liked, and that few people see. Most technicians in industry, for example, are very interested in the aesthetics of printed circuit boards. They choose particular types of components for the color and size, and they organize printed circuit boards so that the boards look pretty. Different technicians have different philosophies about how to do that. If you have a prototype made by two different technicians, the prototypes will look different one from another, and each will reflect a particular visual aesthetic.

JM - That's interesting. So, in the way that you've chosen components, organizing the components for a logic to the system and organizing them for visual appeal of the instrument are not distinguishable.

You indicate in the score that each performer should design his or her own instrument which would, I assume, manifest everything from aspects of the performer's personality to specific performance skills he or she had. But on the other hand I was curious if your specific instrument was designed in such a way that another performer would be able to figure out the logic of it. Could that be done visually, or would it be entirely by a trial-and-error method of cabling it?

RJ - There is very little logic to how it works visually. The reason for that is that it's simply a collection of parts. The important thing is that all of the terminals for each component are accessible.

JM - Could any part be connected to any other part?

RJ - Yes, if the clip leads will reach.

JM - So any network is essentially anything you determine it to be.

RJ - Within the limits specified in the score.

JM - I ~~was~~ questioning ~~whether~~ there ~~was~~ some predefined relationship between the various components.

RJ - A performer could do that in making the instrument. For example, it might be useful simply because of practical considerations - the length of the cords you're using, for instance - to insure that in any given area of the instrument there is an equal, or near equal, mix of different classes of components and values within each class, so that you don't get only one sound character from one network. It gives you more flexibility. At any rate, my specific instrument has to be played with clip leads. Given that, another performer could use my instrument to play the piece.

next

JM - I wanted ^{to} talk about performance. The first performance of the work, as a collaboration with "Composers Inside Electronics," took place at the Kitchen in New York City. Can you characterize how others dealt with the piece, especially as it revealed new ideas about the work specifically, and about collaborative performance/composition generally?

RJ - The others dealt with the piece in very different ways. David Tudor built his instrument in an old drawer that he found in a junk heap off of Canal. Martin Kalve built his on a piece of plexiglass. John Driscoll's was not built on anything, the components were sort of strewn around his table and wired

into a matrix switching box. I was, at the time, doing the piece with patch cables rather than clip leads, and had all of my components wired up to jacks which the patch cables fit into. It was Tudor, actually, who turned me onto the clip leads. It was he, also, who suggested that the components really be visible, and it was brilliant, it was just what the piece needed. So, each performer's instrument looked and sounded radically different.

JM - The differences in sound may be more difficult to characterize, but can you try?

RJ - Martin tended to produce rhythmic sounds with a lot of pitch information. At one point he had a wonderful thing where he flipped a momentary switch and, in the middle of a very rhythmic chugging sound, he produced a sound that was exactly like a steam whistle. John produced a lot of long sweeping sounds, like a ten-foot-tall bird shrieking. David's sounds had less pitch information, and were more in the class of noise. So, the instruments were each more different from one another than I had anticipated.

JM - Was that primarily a function of the components chosen, or the style of connecting them?

RJ - Both.

JM - What was revealed for you in that performance - new ideas either about the work, or about the collaborative process?

RJ - I wasn't very happy with the performance. I realized, actually, that in a collaborative situation you have to have some kind of ground that is explicit. I don't think I was explicit enough in telling the others about the piece.

JM - What were you not specific in telling them about?

RJ - Because I had only a rough score at the time, it was hard to communicate exactly how the network must be made, which is central to the piece. I also found, in retrospect, that I wanted a degree of density in the sound that we only rarely achieved, and I decided that I want the performance to be segmented into areas which are distinguished by different modes of operating the circuits: different levels of gain in the feedback loop, different polarity in the loop, interconnections between networks, and so on. Those were all things that had to come out of experience with the piece.

About the collaborative process, this performance reaffirmed my conviction that an explicit underlying design which forms the basis for the collaboration is necessary.

JM - Just for clarity, all four of the instruments in that performance were operating independently, right? There was no interdependence in their functioning, no networking between performers?

RJ - That's right.

JM - Each was going out on entirely separate speakers that were distributed in the space?

RJ - Yes. The score actually specifies, if possible, one loudspeaker per network. Each performer was, in that performance, operating only one network. Another thing that I changed, following that performance, was to have more networks operating.

JM - In a solo performance, you are, at any time, putting out five networks.

RJ - At least five, and sometimes six.

JM - So in fact in a solo performance now, you're probably generating a denser sound than was generated in that initial collaborative performance.

RJ - Absolutely. I'm also operating near the limits of my capabilities. I don't think I could do more than six networks. It

might be possible...

JM - Was the choice of six networks intuitive, or was it in fact based upon a method of testing what those limits of capabilities are?

RJ - A little of both. It's partly an aesthetic decision of density of sound. Six is, I think, as much as I could handle although I'm willing to try more, but I may fail. I mean, it would probably reach a point at which the performance would cease to be interesting because I would not be able to make enough changes to sectionalize the piece properly.

JM - One other question: in the collaborative performance, would the relationship between specific channels of sound and the performer or network from which each was coming have been clear to a listener?

RJ - We did our best to make it clear: each of us had a single speaker, and each speaker was placed right next to each performer's table. Such things are never very explicit in electronic music. The norm is for a performer to sit behind a table operating controls which are essentially mysterious to the observer.

JM - That was something I wanted to get into as well. It's

almost axiomatic in electronic music that performances are sparse in terms of visual cues by which an audience can determine the relationship between a performer's activities and the sounds produced. By distinction, a solo violin recital is very rich in cues, from a direct visual representation of each sound, to such aspects as emotive expressiveness that's perceivable in the performer. In constructing the SN instrument, it was very clear from your point of view that you wanted to create as little ambiguity as possible.

RJ - That's right. That ambiguity is something I've never liked about electronic music. The problem is the worst with tape music, because you have no idea where the sounds are coming from. Even in most live electronic music, with the exception of keyboard-oriented synthesizer performance, the twist of a dial can be completely hidden from the audience.

JM - Well, it's also very unclear as to what alterations are directly occurring because of the performer and what may, in fact, be internal to the system itself.

RJ - In any case, I think that those visual cues that you spoke of are a significant part of the experience of a performance, and I would rather that there be as many of those cues as possible.

JM - Do you foresee a way of reconstructing the instrument to

make the visual relationship to the sounds more direct?

RJ - It would be possible, I suppose. I think that I'd like the construction of the instrument to be bounded by more or less practical considerations. It has to be - what's the word - the construction of the instrument has to be consistent with the world of the piece. The appearance of my instrument, for instance - suggesting, as you say, the inside of a gutted old radio - to me, that's consistent with the idea of the piece.

JM - This is a more general question which is leading into talking about the music itself. What are you listening for at each stage of the performance - i.e. with each connection - and what is it about what you hear that influences your next patch decision?

RJ - The first thing I'm listening for is instability of oscillation. If I make a connection and I get a single tone, I know I'm not getting somewhere; some single path in the network is dominating. I like, as well, to find as much timbral diversity as possible; in other words, I would like not to follow a sound with another which is very similar in timbre. Beyond that, I'm trying to judge when to change from one mode of operation to another, to make the larger sections.

JM - Does the decision also include rhythmic relationships?

RJ - Well, if two networks are operating with some rhythmic correspondence, I generally find that it's attributable to an electronic problem. There's some coupling between the networks. That usually has to do with grounding problems. If that coupling isn't present, there's so much diversity in the values of the components on the instrument - I don't think I have two components of the same value on the whole board - that I can't achieve the same rhythm in two different networks. I may decide that, if I have several sounds of a rhythmic character going, I'll look for a sound that one might call 'singing,' or some other type. Essentially, that is the way that subsequent decisions are influenced by previous decisions. I want things to change. So, I look for ways to change them.

JM - And how aware are you of the relationship between a specific patch and the sound it's going to make?

RJ - I understand you to be asking if I can predict what a patch is going to do. I can't do that.

JM - You said, then, that a factor which influences the next decision would be to have some change occur. In the course of a performance, do you attempt to be comprehensive in the types or qualities of sound that you produce?

RJ - Yes, I like, as I think I said before, to see the piece

sectionalized to an extent, each section being characterized by a different mode of operating the network.

JM - Are there specific modes predetermined in your mind?

RJ - Yes, there are. One would be to operate at very high gain levels, often clipping the preamplifier; that produces a specific type of sound. Another would be to work right at the onset of oscillation, which generally produces steady tones, or long tones that fluctuate over long periods. Another would be to make connections between different networks, which makes some relationship between the sounds that the networks are producing. Depending on where you make the connection, that relation can be such that they are producing essentially one sound, or it can be such that one will trigger off of another.

JM - In terms of the overall development in a performance of the piece, the sounds seem to progress from greater simplicity to greater complexity, texturally, rhythmically, and in other aspects. How is that achieved?

RJ - I got into connecting all of the networks together as a way of ending a performance. The change in complexity of the sounds over the course of the piece is, I think, more due to the evolution of the circuits, which happens naturally as I

try to find new sounds. For example, I may add more clip leads, sticking more components into a network to get a different sound. The change in density^{as well} is probably more attributable to the evolution of the circuits than to specific designs on my part, although I shaped the performance you heard to place in the middle of the piece a large area in which I was working at very low gain, tending to produce the long tones. That section had a lot less energy. The contrast of going back to the more rhythmic mode after that probably gives the sense, in memory, of a gradual crescendo.

JM - That may be the case. Let's talk about the various temporal aspects of the piece. You indicate in the score that it should have a duration of about an hour. I wonder what necessitates this length, what your conception...

RJ - It comes from experience in performing the piece. I just found that to be about the amount of time I needed to get through doing the tasks; it's also an aesthetic decision of weight. But the networks can be operated in several different modes, and my intention is for each individual sound to sing for at least five minutes from the time that it's entered into the texture.

JM - So approximately once a minute, one of the networks would be changed?

RJ - The five minutes is basically a minimum. Generally, I think, they run each for longer than that.

JM - And what was the basis for having that minimum duration?

RJ - I judged it to be about the least length of time, given the density of the texture, for a particular facet to display itself. Those decisions, in other words, come in part out of practical considerations - what I want to achieve with the piece, and what my direct experience with it has been.

JM - You've said earlier on, as have others in reviews of the piece, that many of the sounds produced simulate natural sounds. You mentioned birds, water running, a truck rolling by...

RJ - A reviewer mentioned that one. He also mentioned a pneumatic drill, as I recall.

JM - Do you attempt to highlight in some sense this simulation of natural sounds?

RJ - It's a by-product of the design technique. This gets back to your earlier question about instruments versus tools. I spent a lot of time working with conventional electronic music

synthesizers. One of my biggest frustrations in that period was that, because of the design philosophy embodied in those instruments, the sounds they produce are not timbrally rich. A lot of work has gone into analyses of the characteristics of conventional acoustic instruments - why a violin sounds as it does, for example. Basically, any of those acoustic devices has unpredictable or irregular properties - resonances at non-harmonic intervals, complex frequency response characteristics. There's always something funky about them. I've always felt that electronic instruments should manifest some of those properties; that's what makes a sound interesting to the ear. It's a reason why I've always liked the Ondes ^{Some models of} ~~Martineau~~ ^{Martineau}, which had wonderful loudspeakers with sympathetic resonating strings, or cymbals used as resonators. One of the basic things in the back of my mind when I hit on the SN design technique was a desire to introduce unpredictability not only in terms of change with time, but also in terms of timbre and timbral changes. This design technique does that. So, the sounds that suggest natural sounds do so because of the design.

JM - At least one reviewer noted a certain potential for ambiguity of those sounds in relation to the environment. Clearly spaces with more ambient noise would heighten that ambiguity. Is that something that especially interests you?

RJ - Basically, as I said before, I don't like things to be

ambiguous. When I perform the piece, I don't keep extraneous equipment on the table, such as reel-to-reel tape machines, that might suggest that some of the sounds are not generated by my actions.

JM - Let's try to talk about the score as a written text, a set of instructions. There's obviously a tradition in contemporary composition of interpretive linguistic scores, from Cage through the Fluxus composers through the Scratch Orchestra through a lot of others. Are there any particular aspects of this tradition ^{in which} ~~where~~ you feel your work fits?
~~wherein~~ this

RJ - Well, it's not an instruction piece as such. The focus is not on notation. I chose that form simply because I don't think there's any other way for me to communicate the idea without ambiguity. The score specifies a lot, and there are things it tells you not to do. I like that. It does allow freedom of choice, for example, in the construction of the instrument, where I think that's proper, and actually I desire it. But I can't think of a way to communicate ^{cate} ~~community~~ the idea graphically without allowing too much freedom of choice in areas I don't want to give up. I don't want the performers to be free, I want the circuits to be free.

JM - In your lecture in a series presented by Composers Inside Electronics at Media Study/Buffalo a couple of years back, you

defined collaborative composition as a method in which the role assigned to the composer becomes one of defining an approach, and the act of performance becomes collaborative composition by the group, based on that approach. Could you distinguish this from other collaborative musical forms - improvisation, for example?

RJ - Oh, it's very distinct from improvisation. I don't think I can make the distinction from improvisation at the level at which I spoke in that talk. In other words, in a jazz piece, for example, the overall design - usually a series of changes - is made by one person, and the note-by-note realization of the piece, which is the traditional definition of composition - [putting together] - is done collaboratively as improvisation. Jazz, in that sense, operates in the same way. However, this music is not improvisation because, if it is correctly played, there is no element of self-expression. This music being, that is, SN and pieces of that type.

JM - What are other pieces of that type?

RJ - Tudor's Rainforest, Alvin Lucier's Queen Of The South, there are many examples. Any piece which is basically task-oriented. This piece is task-oriented. What is musical about it comes less from instant-to-instant decisions on the part of the performer than from design decisions on the part of the

composer. The performing process, in this piece, is actually composing in the sense that one speaks of photographic composition. It's a process of selective observation. That's quite different from picking up a saxophone and playing against a series of changes.

JM - Let me put forth a final question, as a point of summation. You've composed for more traditional instruments on the one hand, and, on the other, explored acoustic phenomena such as ultrasound as a ~~more~~ purer approach to sound. That's a wide range, although it's not unprecedented in contemporary music. Where do you feel SN has brought you, and where do you think you're heading?

RJ - SN brought me back to performance after a long period away from it. That's what I'm really interested in now: performed work. I found in this piece a way of dealing with theater, or the presence required in performance. I'm headed for making the systems I work with, and my interaction with them, more explicit. I'm more committed than ever before, also, to the idea of the design as the unifying basis for a work. SN proved ~~to me~~ that that's, for me, a good way to look at working.

~~JM - Let's kill it here.~~