

## BIRD AND PERSON DYNING (1975)

for performer with microphones, amplifiers, loudspeakers and electronic sound-producing object.

Route a binaural microphone system with long cables through amplifiers with limiters to one or more pairs of loudspeakers. Place an electronic bird or similar sound-producing object anywhere in the performance space. Plug it in. Set the amplifiers' volume levels so that the sounds of the twittering bird, picked up by the microphones, can be heard through the loudspeakers, and feedback, controlled by the limiters, occurs.

Stand anywhere facing the bird. Listen to it, wearing the binaural microphone system, a miniature microphone in each ear. Walk in very slow motion, passing the bird and/or loudspeakers, mapping the acoustic characteristics of the space in terms of the pitches, intensities, and shapes of the encountered strands of feedback. Turn, dip, and tilt your head to make corrections and fine adjustments and to move the sounds of the twittering bird from loudspeaker to loudspeaker. Stop from time to time to catch and hold single and multiple strands of feedback so that interactions, if any, between them and the twitters can more clearly be heard. Search for phantom twitters, including mirror images above and below the originals, caused by heterodyning.

Use the directional properties of the binaural system to localize these phenomena for listeners.

*I'd like to ask some questions about your three most recent pieces, namely **Still and Moving Lines**, **Outlines**, and the piece you described to me that's as yet untitled. While I was thinking about them and forming some questions, it occurred to me that there are some interesting similarities between them. One might be that in both **Still and Moving Lines** and **Outlines** you use essentially neutral sound sources, ones that are very simple and not at all the subject matter of the pieces, but these sound sources, being neutral, allow what is of interest to become apparent to the audience, in one way or another. And it seems to me—you perhaps will disagree—that the sound source in the bird piece, while not as simple as the others, is similar in being arbitrary; it's an object that works according to its own rules. So, I'd like to ask if you're aware of continuing interests that would account for the similar propositions with different approaches that we find in these three pieces?*

I am, yes. While you were asking this question it struck me that the first two, **Still and Moving Lines** and **Outlines**, I composed by design. I had ideas about certain sonic phenomena and I had to work to find a way to realize them in each of the pieces. In the first piece, **Still and Moving Lines**, it was standing wave phenomena and being able to spin the standing waves around, and in **Outlines**, it was being able to display the diffraction outlines of an object caused by sound. The third piece, the bird piece as you say, I discovered by accident. It was given to me in various ways. The piece involves an electronic bird, the kind you can buy in stores for use as a Christmas tree ornament. It consists of a plastic ball with a loudspeaker and a simple electronic circuit inside, and it makes a kind of bird-like sound. You simply plug it in. It was sent to me by Doug Kahn, a young California

artist whom I have never met. I guess he sent it to me because of some interest he must have had in my work; it came in the mail one day out of the blue. He said it was part of "A Dream Aviary," but that in my case he would call it "A Dream Alviary." I was delighted to get it; it was a very charming gesture for somebody to make. So the sound source of the piece was a gift. For about a year, I kept the bird in my kitchen and would plug it in and listen to it from time to time. I noticed that when I got near it, the sharpness, or loudness of the sound would cause what I believe to be combination tones in my ears—you know that phenomenon; I heard phantom sounds that the ear produces because of overdriving. And I knew that somehow or another I'd be able to use this sound quality in a piece someday. It was a new sound in my life.

Another coincidence, there are two more, was that I had in my possession that binaural microphone system that I asked you to buy for me. As you know, it consists of two miniature microphones, one for either ear, so that when you record something, you make a realistic replica of how your ears spatially perceive the sound. For a stereo recording, you simply put microphones so many feet apart; the binaural system depends on the diffraction and reflection effects of a human or dummy head and ears for its life-like results. And I knew when I bought them that I wouldn't use them just for recording; I knew I would use them in live performances. If you connect them to a sound system and wear them in your own ears, you can pick up and amplify whatever you hear. Then if you move from right to left, you can pan your personal sound field from speaker to speaker.

The other coincidence was that a student of mine, Nicolas Collins, had been making pieces with feedback. I've never made pieces using feedback in that way, between microphones and loudspeakers, and

I think that his work opened me up to it. Now what is interesting is that the pitch and volume of the feedback is determined by where the microphones are in relationship to the loudspeakers. Since the mikes are on your own ears, if you move an inch, or a foot, it's going to create different kinds of feedback of different pitches and intensities. It seemed to me that these things coincided in a beautiful way, the gift of the electronic bird, the binaural mikes which you could wear on your own head, and my involvement with Nicolas Collins' work.

I decided to try to make a piece out of these materials. My first idea was simply to plug the bird in anywhere in the space and stand facing it, with two speakers on either side. Then if you turned your attention away from the bird to the right or the left, you could pan the sound. It would just be a beautiful, simple kind of panning, and I was perfectly willing to let that be the idea of the piece. If you walked through the space, you'd change your physical relationship to the bird, but the bird itself would stay still.

*And the audience would hear both.*

The audience would hear both. Then I thought, well, if you had speakers far enough away from you, in the balcony, say, you could create time delays. That was going to be the idea of the piece; that's what was going to alter the sound of the electronic bird. But accidentally, I fell into something different. It was the day after Thanksgiving, and as I was doing the piece in the Wesleyan University Electronic Studio, feedback started between one microphone and a loudspeaker. The bird was chirping, it repeats the same thing over and over again, and the mixture of the pure feedback and bird sounds

began to produce difference tones in my ears. I found that if the feedback was above the pitch of the bird, it would sweep from high to low. That's because the third, or resultant sound, was made up of the difference between the two original pitches. I found I could play with trying to create two or more strands of feedback, altering the bird sound in new and more complex ways. So now I find I have a piece involving a very simple electronic configuration. All I have to have is the electric bird, two loudspeakers, two amplifiers, and the binaural mikes, and by simply moving to different points in space, I can produce a great complexity and variety of modulation of the original sounds.

*What you're doing is putting your own sonic perspective back into the room . . .*

Yes.

*. . . so it becomes part of the room again.*

Right. There was an article recently in **Scientific American** about indigo buntings and how beautifully they orient themselves as they fly from north to south. They fly thousands of miles nonstop by looking upward at the constellations. It seems that they have some sort of timing device with which they can compensate for the rotation of the earth, which changes the relationships of the stars. These birds are just amazing navigators; they inspired one of my images, though it doesn't really have much to do with the piece now, which was to move and turn such that the panning would change the relationships of the sounds in the loudspeakers with respect to the static

bird sound. Now it was just an idea; there's no concrete way for me to use that, but it got me started, it got me standing up in the space. In the first two pieces, the sounds, as you said, are very simple; they're simple sine tones, but in the third piece, the sound source isn't a neutral one at all, it has a lot of information in it.

*But it's arbitrary.*

Yes, I don't know what to do when I write the score, I wouldn't want to demand that anyone who does the piece use that same type of electronic bird.

*It seems as though the three pieces are connected then, but that each explores a different aspect. In **Still and Moving Lines** you produce a pattern in a room that's stationary during one part and moving in another. When it's stationary, you use a visual portion, dancers, to display the pattern; when it's moving, you don't need the dancers because the audience, in effect, is moving in relation to the pattern.*

Right.

*So that's one thing. In **Outlines** you've got a microscopic analysis of the situation with a single-point microphone; you can explore one point at a time in linear fashion, you can scan the interference of effects of the canoe, or whatever other object you use, in the space. In the bird piece you've got still another way of doing it, the binaural perspective, which is an all-over effect and even affects the environment further because it comes back into it. It's a more complex situation.*