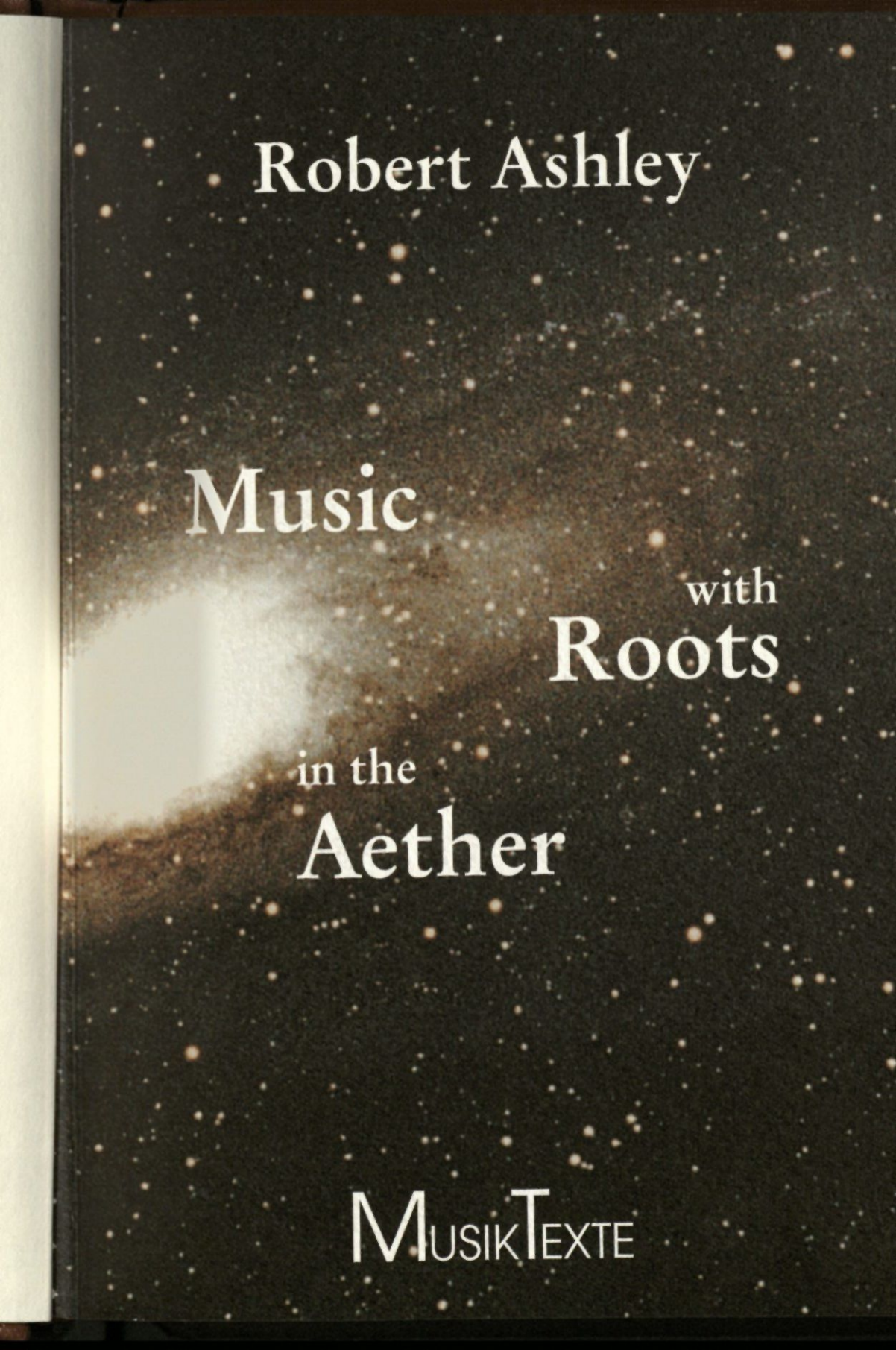
Robert Ashley
Music
with
Roots
in the
Aether
MusikTexte

Robert Ashley

Music with Roots in the Aether

Interviews with
and Essays about
Seven American Composers

MusikTexte

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for Mimi Johnson

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Foreword

by Robert Ashley

I

Gisela Gronemeyer and Reinhard Oehlschlägel asked me to write a Foreword to the MusikTexte publication of "Music with Roots in the Aether." I agreed because I knew that virtually no one would know or remember anything about the project after the twenty-five years since it was made, and I knew I couldn't expect anybody to want to restudy the project (fourteen hours of television and hundreds of pages of interviews and commentaries). But the Foreword turned out to be hard, even for me. I couldn't remember who I was when the project was conceived. I couldn't remember any of the energies of the ideas that went into the project. Purposely I have not been good at remembering old ideas. I burn bridges. It keeps the path clear.

Everything now seems so obvious. I wanted to make an "opera for television" in which the characters of the opera were composers and the "drama" of the opera was in their music. I did it. Perhaps hundreds of thousands of people have seen the video tapes of the "opera for television" in closed circuit presentations in music festivals, in museums and in their homes. (Lovely Music, Limited, the distributor, is still selling copies.) Recently, it has begun to be shown on cable channels in the United States. It has become a kind of "cult" classic. But twenty-five years is a long time.

I was in a desperate situation, having nothing so say that I had not said too many times and too long ago.

Miraculously, in being forced (for lack of any more space) to "clean out my files," I came upon three essays and an interview about "Music with Roots in the Aether" that had been written when I still had the polemical energy to "explain." I realized in reading these essays and the interview that I could not say these things now. So, I edited one of the essays and the interview to make up the Foreword to this publication. The editing consisted mostly in correcting dates and times (changing "ten years" to "twenty-five years" and such.) The essay seems to have been written in 1985, the interview ten years earlier. I don't remember why I wrote the essay, but it seems to be some sort of program note. I don't remember that the interview was ever published. It probably was a kind of program note, too.

There is one peculiarity in the MusikTexte publication that has to be explained with regard to the video taped interviews. I had wanted to include Roger Reynolds in the video taped programs, but some complication of his schedule and mine made that impossible on the schedule I had. Then, I ran out of money. And I ran out of

time. (I had a commissioned premiere date.) So, Roger was "interviewed" not on tape (like the other interviews), but by the composer, Paul Robinson, who was at that time on the faculty of the Center for Contemporary Music at Mills College in Oakland, California. It has a style that is different from the other interviews. But it reflects my admiration for Roger's music.

Another peculiarity in the MusikTexte publication is that there is no "Interview" with Robert Ashley. (In the opera for television the interviews with the other seven composers are conducted as part of the "Landscape" with the composer.) I tried to solve this problem (how to interview one's self) with two, different one-hour pieces on camera. (In one I talk with "Blue" Gene Tyranny; in the other I talk with Sam Ashley.) Neither was satisfactory. So I substituted, in the opera for television, a performance of a composition I was working on at the time, entitled in the video version, "What She Thinks," which allowed me to bring together with me three people who were very important to my musical work at that time: "Blue" Gene Tyranny, Paul DeMarinis and Mimi Johnson. So, "What She Thinks" is the "Landscape with Robert Ashley" in the opera for television. But what was said during the performance would not make much sense transcribed to paper, much less constitute an interview. So there is no Interview. Maybe the composite of my presence in the other six interviews will serve the purpose of an interview. Otherwise there is the extraordinary, flatteringly understanding and sympathetic essay on some of my work and ideas by one of my most long-time musical friends, Robert Sheff.

I am indebted to all of the artists who collaborated in the "opera for television": Philip Makanna, who directed the scenes and operated the camera; Jerry Pearsall, who was the video engineer and who made the equipment work under the most adverse conditions; Maggi Payne (also, David Behrman, Peter Gordon and Marc Grafe), who recorded the video interviews and the music; and William Farley, who was my "concept consultant" and friend throughout.

I thank Mimi Johnson for editing the interviews and the commentaries before they were submitted to MusikTexte. The abridged version of the longer text of Robert Sheff's essay was made by Peter Niklas Wilson, who also translated the entire English text of "Music with Roots in the Aether" to German.

II

What is the book, "Music with Roots in the Aether?"

This book comes out of an opera for television by the same name, but the book is longer than the text of the opera. In the television production I asked six composers to talk to me about their ideas in settings that were theatrical. The interviews are called "Landscapes" in the opera. I wanted the talks to be beautiful and interesting to look at, something different from the ordinary TV interview. In most television interviews nothing much happens in the way of "character." In the opera the "Lands-

capes" are staged, some staged out-of-doors. There are things to look at, and something is going on in the picture besides two people talking. This has an effect on the mood and the tempo of the interview. It influences what is said. Sometimes the subject would change abruptly. I don't know why. Maybe you think about ideas differently when you are standing in a strong wind. These interviews were edited. Then, I asked seven younger composers to write essays on their older colleagues.

Would you explain the idea of the essays?

There is apparently no writer in music theory qualified to write about this music. This is very peculiar. The subject is a group of composers with international reputations. The composers have been active for thirty years. They represent a "movement" comparable in scale and originality to anything from the past or from another place. There is an abundance of journalism, but almost nothing in extended argument written about the idea of the music or about the composers.

"Music with Roots in the Aether" was begun in the tradition of the composer-interview, and it has the qualities of that form. It is casual and forthright. And it has the flaws of the composer-interview. Important ideas are incomplete. So, I asked the younger composers (the "next generation") to write something to introduce the music and the ideas.

Wasn't that asking a lot?

I knew I might fail them. A publisher was "interested," but I did not have a contract. There was a lot of work to be done. The contributions from the writers came in promptly. They believed in the idea. They showed themselves to be experts in the music they wrote about, though there were no compositional "influences" to speak of.

So why is the book twenty-five years late?

I did fail them. My relationship with this publisher got to be so depressing I couldn't go on. The publisher wanted a "negative" advance, complete control and no responsibility. Other publishers said they didn't know anything about contemporary music and weren't interested. So, I waited for desk-top publishing or for some change in attitude.

The writers have all gone on in their careers and probably have given up hope that their essays will be read. The essays are no longer up to date as reviews of a composer's work, but they are up to date in other ways. This delay has given a twist to the project I could not have planned. The composers in the video recording were all approaching "middle age." We were beginning to think about the past and the future. It is the tonality of the interviews. This moment in the composers' lives gave the video recordings an aura of timelessness, because the recordings were so fixed in time. Who can remember the optimism of 1976 now? In counterpoint to that timelessness, the essays seemed confident and brilliant and youthful. Now, the whole thing is stuck in time. It would have been better to have published twenty-five years ago, but the book has another quality now.

What does Aether mean?

Not long ago a few composers dreamed of the day when there would be a lot more new music. Now I think many composers dream of the day when there might be a little bit less—because the boat seems to be listing. But things are still better than before.

The first person I saw making music (except in the movies) was the jazz pianist Dickie Johnson, who played the piano with the Johnny Harberd Orchestra, which was organized by the Custodian at the Post Office, Mister Harberd, and recommended to me by my father, who worked at the Post Office. I followed Mister Johnson around town at night, when I could get into where he was playing, as in the parables about how one learns through devotion and selflessness, while suffering rejection by the Master. Years later, on the way home from a meeting in which one of the Authorities who had just come back from a sabbatical in Europe gave me credit for having ideas "just like" an important European composer (name withheld), but withdrew the compliment with the disclaimer that "He's a genius, of course," I ran into Dickie, who was working the back of a Sanitation Truck, and I realized that things were different here.

Last week [1987], I was invited (see "Landscape with David Behrman": "You would have to be popular for non-musical reasons . . .") to the season opening of the New York Philharmonic. From an Important Box (I keep fast company) I watched a lot of Tuxedos dozing under vigorous massage by The Wife to keep the thinker from falling from his seat. I thought to myself (in prose): In spite of good intentions, hard work, your gift from God and relatively good luck, intelligent companions, national prosperity, a world-wide reputation, good health and sound mind, best wishes from friends and a decent suit of clothes, as far as The Big Time goes, you are on the outside looking in, have always been and will always be, and nobody you know is any better off.

This is weird.
This is New York City, 1987. Down below a large number of men (the orchestra) are trying to take us back to the Vienna of 200 years ago, and that is all they ever do.
Next door at the Opera the same thing is going on.
All over the country the same thing is going on.
Yesterday's article in the Sunday *New York Times*—part of the publicity for this event—describing the desperate situation for orchestras all over the country, was not a plea for change. It was a plea for more money for the same thing.
It would have been foolish for me to make a one-man, European-style demonstration from the Important Box.
Looking forward to the winter months is not as casual as it used to be.
Thirty years of hard work has not put anything in the bank, so I can't retire to Florida and become a legend.
Silence is not golden.
This train of thought does not describe the world's indifference to the situation.
I am pretty much cured.

I did "Music with Roots in the Aether" to explain the situation here. Aether fills the void, as in not knowing when you might get a chance to hear somebody make music, or where is the nearest town where something might be going on, or whether Harry Partch is still alive and if so where, or whether you got the idea that wakes you up at night from the hard-to-hear part of what comes over the radio or from something you read about in a magazine about electricity or from something you just dreamed up.

Would you describe this music as classical?

Many composers of my generation missed out on a classical music education because the lady who taught "Rustle of Spring" couldn't play it. For me, classical music lived in the parlor, as an ideal. It was called classical music to distinguish it from the music of, say, Nat Cole, Meade Lewis and Frankie Carle. Their music lasted three minutes. Classical music lasted a long time. There was nothing else. Now there is something else. It satisfies the requirement of lasting a long time, which is an important quality of thought, and it is played, which is an important quality of music. We don't have a name for it, but it's here. It is theatrical in its appearance and dramatic in its forms and techniques.

Would you explain dramatic?

For us (Americans) the presentation of music is still an unusual experience equal in importance to the symbolic substance of the music itself. When the composer has been willing to treat the presentation and the symbolic substance as part of the same package, the idea is knocked around of the "American Eccentric"—meaning the composer whose music is unusual in its presentation or in its use of instruments or in its "form." But that idea is wrong. There is no American center to be "eccentric" from. The situation is simply "dramatic." That's what we have to live with. American composers envy their European contemporaries, who are concerned with questions of structure, technique, social meaning and political value, which we have no use for. When we look to the European composers, who are closest to us in the interchange of ideas, our suspicions are confirmed: our music gets no points for its structure, technique, social meaning or political value. What the audience likes is the drama of a new music being born.

What about the situation for younger composers?

Will something of substance replace the Aether? Not soon. All of the parts are in disarray. The younger writers in this book are now "middle aged" themselves and are spoken for: computer designer, producer-performer, video-graphics editor, recording engineer, singer (free-lance), Arts Council Administrator (Great Britain), advertising, producer-performer. And all are composing music. How shall I get a chance to hear their music? I know! I'll call up the Director of the Philharmonic and the Director of the Opera. They'll have an answer. I could wait until I see them in the Tea Room, but this is urgent. I'll call. We will discuss the problem. These youngsters don't write for orchestra and opera companies anymore. List the reasons.

Then, we can get down to business. Establish a sort of "Place," with many kinds of studios and many kinds of stages and a coffee shop and restaurant and a schedule of fifty-two weeks a year. Older players can come to learn. The very young can hang out and come up playing when they are ready. Because of the decent budget for publicity, we will have large crowds and lots of discussion in the media, pro and con. We can have a Place in every city, a network of reality. We can invite composers from other countries. This is wonderful. With support from the Big Names in Music the National Endowment will get behind it. That will bring in Corporate Support, and the Corporations will be happy about the new emotional health of their representatives. There will be no more sleeping in the aisles. Et cetera. Oh, well.

I exaggerate. Actually, electricity is changing everything. But that is in the future. For right now we watch the younger composers in amazement. The drama is the struggle of the individual with the situation. How to get the music played? They have to compose without regard to context: who might be listening? is doing it realistic as a way of life? Hardly anything of how-to-do-it is kept from one generation to the next. You are left to figure out how to do it on your own. The rule is: if you come after another composer in years and your music resembles that composer's in any way, you are out. We like composers who seem to have come from out of nowhere. We don't play their music. We don't make institutions to have their music played. We watch them work their way through life and then lament them. That's the reason why those men in the New York Philharmonic were trying to imitate Old Vienna: They Have Nothing Else To Do. To think about it any other way would be un-American. The American orchestras and opera companies are the spiritually unemployed; they lack useful skills, are listless and resentful, live on government subsidies and are a source of worry and attention in the media.

When do you recognize the Aether?

One dimension of the Aether is the difference between what the composer, when he or she is young, expects to be doing later in life and what actually happens. What actually happens is that at around thirty the composer realizes that the phone will never ring, that precious years have been wasted and that it is time to get on with business. The child-prodigy composer is inconceivable for us. Starting time is "around thirty." Personal styles emerge intact. Any dialogue with what has come before is precluded. A new form of the language has been invented one more time. Later, critics, journalists and other members of the professional public regret that the best talent has turned out to be so "different" and unsupportive of our institutions and speak of making efforts to see that it will never happen again. They speak of "education." But nothing ever comes of these discussions. Meanwhile a new generation is working toward a language.

Would you explain why it continues in this way?

The positive aspect of the Aether is the absolute and existential freedom therein, which probably is its attraction for composers in countries, say, in Europe, where

you can sit in a cafe all day over a cup of coffee and the vegetables come from farms nearby. American music is a cowboy movie enacted in vastness. The lawlessness of America is our charm. Here everybody carries a gun and writes whatever music they please, unencumbered by preconceptions. That's something.

What do you mean by preconceptions?

I will have to admit it: I never had an idea about what music should be. It seems strange to say that now. That I wanted to make music almost without any experience of music seems strange. That I should want to make it without knowing what I wanted to make seems strange. It reminds me of the nature show on television that emphasizes how strange it is that the baby turtle emerging from the shell in a laboratory knows which way the water is. I think that instinct is what makes musicians out of people everywhere. But it must be different when there is a model (when the shell is where it is supposed to be in nature.) Music is a "story." Maybe in "older" cultures music can be, for the individual, the story of the culture, a history that the individual has absorbed. In that case there might be the notion of what music should be. But in the Aether there is only music and no should. We have emerged as if on the laboratory table, with the instinct in full force and with a long way to go.

How does the opera fit into this?

The question of what we are up to got to be a major preoccupation of mine. I wanted to understand it better. That was the reason for "Music with Roots in the Aether." The first version of the idea (1968) was to bring a large number of composers and other artists to perform in one place for a long period of time. It was a "project" in current terminology. I tried to make the idea seem as altruistic as I could, but the motive was purely personal. I wanted to learn something. But nobody who could have helped (a foundation, for example) was interested. Then, five years later at Mills College, with the help of Mary Ashley, Nick Bertoni and William Moraldo, I produced "Music with Roots in the Aether" as a performance festival. That was a high point of learning something. But it just wasn't enough. What it lacked was some trace that I could go back to. It should have been recorded. Another three years went by and I went to many people I thought would help with the idea of an opera to be produced someplace where there could be a long run. The characters in the opera would be composers. The story would be the music. In every situation I was told, in so many words, "There is no possibility that I could support opera. There is no such thing in our time."

Discouraged, but not dissuaded, I sulked. Then, one day my friend Bill Farley (the "Concept Consultant" in the credits to "Music with Roots in the Aether") said, "Why don't you tell them it will be a video documentary?" I swung into action. The checks started arriving. Then, I had to make unwelcome decisions. I had to leave people out. I chose the eight composers whose work or whose life-schedule I knew best. I planned, in addition to the six composers I eventually worked with, to record Roger Reynolds and La Monte Young. Much to my regret, I ran out of time and

money before either of them and I could get together on a performance and a schedule. To have covered the ground completely I should also have recorded Maryanne Amacher, Larry Austin, Anthony Braxton, Joel Chadabe, Joan La Barbara, Salvatore Martirano, Roscoe Mitchell, Steve Reich, David Rosenboom, Frederic Rzewski, David Tudor and Christian Wolff and at least a dozen other composers. When the recordings were finished and I was showing the piece to people I hoped would help, I tried to get support for another "series" and for a group of programs about European composers, but it was impossible. The rest is as I have told it. They are on tape, fourteen hours that I have listened to and watched through a minimum of fifty times, and finally I am satisfied. I still don't understand.

What did you expect that understanding to be?

Nothing in the recorded programs of "Music with Roots in the Aether" or in a lot of the music I love resembles what I imagine I should think music should be. Each of the composers is different from the others in the sounds they make, because of what they have chosen to make the sounds with. They are in accord in how they think about their music. "Music with Roots in the Aether" is a sample of the variety that is produced in our situation. And the music made by the younger composers, who have written for this book, is yet another thing. How is this possible? Is there an end to such variety of sounds and how they can be put together? Can it be exhausted? Probably not. We have problems, but that's not one of them. Now, because of "Music with Roots in the Aether," I wish I could see a video tape of Henry Cowell making music. I saw him in person, forty years ago. He came to the university where I was studying and gave a lecture-demonstration. It was not until thirty years later, when I was doing lecture-demonstrations myself and had learned the politics of that ritual, that I remembered they had put him backstage in the concert hall where we, the students, had to stand for an hour and a half. It was noisy with people walking in and out, and it was chilly, too. He wrote music out on paper. He wanted to have it published. There was little choice. It was his gift to the world.

Is this music published?

In the situation we're in now we don't need music publishing, or we would be in more trouble than we are. I think that only Reynolds is "published." This is connected to his decision not to perform. For the rest, publishing, as an obligation, has been a ludicrous problem. Publishing firms seem reluctant to hire people who can read music. This must be true. Almost no music appears in print that would indicate otherwise. In electronics, any new idea of general interest is explained in a technical journal by a person associated with the firm that is promoting the idea. What could be simpler? Have we ever seen an analysis of a new kind of score explained in a technical journal by the publisher of the score or by someone who could argue with the composer about the difficulties of the score for a publisher? Thanks a lot.

Years ago I spoke at one of the conferences that deal with our problems. This one was in Europe and was about notation. I tried to explain that for us (Americans) no-

tation couldn't be a problem, because there were no publishers. The Europeans understood. Outside in the lobby every European publisher had a display table with contemporary scores. The dramatic facts, for me, were: the scores numbered in the hundreds; there were scores by composers I had never heard of; the majority of the larger scores for orchestra cost more to print than I had earned in total income in the year that the score was published; most of the scores had been played.

Later that year I attended the world premiere, in Holland, of a major work by John Cage. It wasn't to be played. The conductor explained that the parts hadn't arrived until yesterday and that the orchestra was not interested in sight-reading. Cage was gallant about his publisher: he had sent the parts in months ago, so there must be some mistake. The orchestra sight-read the piece at his request. It sounded very American. On the same program the orchestra played Ives' "Three Places in New England." It was the best performance of any Ives that I had ever heard. Apparently, they rehearsed and, so, felt strongly about sight-reading.

Is this situation purely American, then?

The publishing is. The excellence of European scores is obvious and well-known. I have seen recent scores from Japan that show the publisher's interest in what is happening. The United States is a disaster. Most of a generation's work is unpublished. The reason is publisher-sloth. As for the music, no. The effects of the situation are spreading. As I said, I wanted to do programs about certain European composers. That was twenty-five years ago. What I hear now from Europe sounds like things are changing for many composers there. South America is a mystery, for reasons that have nothing to do with music. Japan is important, because of its openness to synthesized sounds, but word of mouth has it that things are not easy for Japanese composers who might not be interested in a "popular" audience. I don't know what is really happening there.

American composers are good at getting small groups of musicians to work together, without much reward, because (Philip Glass interview) "there was nothing else to do." This has forced the composer to become an expert producer and performer in techniques so specialized that many musicians can't follow what's going on. The expertise covers both instrumental and ensemble practice, which is where it counts, when other people are to be involved. Outside of the circle of expert-friends, the composer's experience is that other musicians can't play the work because they don't know what to do, and even after what to do is explained, they can't do it. They can't do what is required in ensemble. To be fair to instrumentalists and singers there is never enough rehearsal time, and to spend additional time on preparing a performance without even the rewards of being a member of the band is a real test of idealism, but the fact is that, with the exception of the dedicated ensembles, music in America has become a matter of sight-reading. This is glaringly true for major ensembles. Sight-reading is generically different from doing something for the first time, when you have done something like it many times before, as in

jazz or as in what musicians are famous for throughout the new-music network. Yesterday I heard an orchestra playing Debussy. I was reminded, painfully, that, if any composer wrote that piece today, no orchestra in America could play it, because it doesn't lend itself to sight-reading.

That is why the composers in "Music with Roots in the Aether" have made their reputations playing their music themselves. Their work often excludes other music, because there is no support for even what has to be done. We don't have an Alvin Lucier interpretation of, say, Virgil Thomson, for instance. So, once in a while somebody stupid wants to know if these composers know anything about "music." "Classically trained" usually gets into this conversation. This sounds like an exaggeration, but it is not. Another stupid idea comes up when the listener has preferences that make him or her think that the preferred music is an exception. This can go in any direction. Preferences are inevitable, but trying to divide the music into "real" and whatever the other might be and pitting one version of an idea against another is stupid. In connection with this problem I should report that these composers like each other's music and try as best they can to keep up. The younger composers' essays are an example of this.

The true "exception" in this group is Roger Reynolds, because of his decision not to perform. Note, though, his remarks on what happens when he is not present for the preparation of the performance. Having known Reynolds for fifteen years at the time when "Music with Roots in the Aether" was produced on video and having watched him rehearse performers, I wanted him included in the group as a bizarre case of a "performer" who does everything except appear on stage.

How can this music survive?

One answer is: in recordings and in every other kind of electronic documentation. Another is: apparently everything survives in its essential nature—in what it "means." Another is: that question confuses us on the matter of how to make music happen for the "living audience." Change is the principal fact of American music—that, and the fact that the composer is always "on the outside, looking in." This is peculiar to America. In some way we should be happy with our situation, I suppose: so much freedom, diversity, et cetera. But the burden of the situation is that by virtue of being excluded from collaboration with on-going institutions the composer is denied the simple pleasure of reward and the profound pleasure of working with a large number of people organized toward a common goal. Our music has the limitation of staying in the largest scale of production and conception that the composer can manage by himself or herself, never to be able to move through different forms. That is a shortcoming in the music for which there is no cure. When something happens for an individual as an exception, the circumstances always turn out to be so rare that it may as well have been a case of winning big at the lottery. The American composer reaches middle age with no prospects except the prospect of doing the same thing he or she has been doing for the last twenty-five years. The

paradox of "change" is that nothing changes for the changer.

What can we expect of the future?

At the moment we are—to borrow a word from John Cage (*Silence*)—in a time of "consolidation." It is agreed that, firstly, the idea of controversy as an inevitable side-effect of new music is dead and, secondly, everybody is happy. The consolidation has come this time in the form of a renewed interest in "the score"—for example, the musical idea spelled out on paper in detail and in a form that is publishable and playable by the average musician, thus making the expert unnecessary and the living composer indistinguishable from one of the dead ones—along with support for the all-purpose small ensemble playing from scores, with an emphasis on history, especially with attention to the generation that came just before mine and wrote a lot of scores. It's a lesson to young composers. Get a job teaching (or whatever) and write scores. Send them in.

The real meaning of the consolidation is not scores, obviously, which are sometimes necessary and always interesting to look at. This consolidation (Cage was referring to one that was felt among composers in the 1950s) aims to simplify presentation, to clear up the confusion about what music is. In this consolidation the past of presentation defines the present and whatever does not fit that definition is "experimental"—that is, untried, untested, and perhaps untrustworthy. (Curiously, the term, "experimental," which has become so commonplace that we are willing to overlook what it does to our morale, came from the same book, *Silence*, but Cage coined the word there with a meaning, the purpose of which was entirely different from the one used now.) So, this consolidation has focused on the score, because the score defines the ensemble and through the requirements of the score we are urged to substitute one kind of ensemble, very "generalized," for another, which is "specialized" and unique. This is a mistake and a passing fancy, imposed on music by those who are trying to make sense out of what is difficult and who have reason to be concerned when the composer-as-performer decides to do something that has never been done and probably can't be done without a lot of help and support.

All-purpose ensembles are wonderful. What could be more wonderful than what you couldn't possibly do without? Everybody should have whatever they need from the great past, the recent past and the present in whatever proportion they need it and when they need it, but the idea of playing a little bit of everything is not necessarily wonderful. Inevitably, the everything lacks something of importance—what do you call it? Things might turn out differently in this consolidation if there were a standard of, say, forty hours of rehearsal for every twenty minutes of performance, but that is unlikely to happen. So, while historical samplers may be here to stay, I think the spirit of consolidation will give way, everybody won't be so very happy long and we will be looking again soon to see what's happening on the "outside."

Where do you think the new idea will be found?

I think it will be found on television. I don't mean played in front of cameras

with some idiot explaining what it all means while the music is going on in the background. I mean composed for television, bringing together the music and the theater of the music in the way that the composer has imagined it and in precisely the way that usually makes it impossible to be realized on stage.

Is it realistic to think that television will do new music?

I know it would seem that television is a more formidable establishment than music. But the differences are two, at least. The opera, as the extreme example of The Establishment, but typical of the larger problem, and seen on television as documentary, with questionable musical results, was brought to America and is brought to television as a replica of something else. Because it was conceived as "replica," the structure of plurality was replaced in our understanding of it by the structure of "best case," with smaller and smaller replicas spread as far as the eye can see, all aspiring to and feeding the "best case" situation: a kind of baseball farm-system with only one team in the major leagues. This arrangement makes opera people impossible to talk to about anything except the question of replication.

Television, on the other hand, is diffuse in the way we do it. We have more networks than anybody can keep track of now, with others waiting in the wings. This has spared television broadcasters and the television audience from the "best case" syndrome. Television is subject to the same pressures of large-scale dissatisfaction with sameness that made the audience for new music, and that fact can only work to everybody's advantage. (Moreover, television is "real." I have had the experience of having a young journalist ask me what right I had to call my work "opera," and when I asked him if he had ever been to an "opera," he said no.)

Of the human activities an audience might be expected to be interested in, music is the main one that hasn't found a form on television. That music lends itself wonderfully to television production is so obvious, its absence on the scene can only be explained as another symptom of the Aether; we don't have a clear idea about what our music is, so we don't do it. But, I think it will be done. (I don't think it will happen in my lifetime.) "Music with Roots in the Aether" has finally been finished (technically) for television. In the meantime, it has been shown in closed-circuit for thousands of people. In the meantime, too, a second opera, "Perfect Lives," (seven half-hour Episodes) was completed and has been broadcast in Great Britain and in many places in Europe. I presume that eventually it will be broadcast here.

Another difference is that everybody in television has to deal with contemporary technology. This makes television people, on the whole, more optimistic and more open, more sane to be with. The sentimentality and cultural schizophrenia embodied in the guy whose Stradivarius pays for his sports car and his ticket on the Concorde and who doesn't want any music that would make the Stradivarius or the way he plays it obsolete is not met with in television people. Television people are conservative, under the pressure of public opinion (ratings), but they are seemingly open to whatever good ratings can produce. If a good producer could demonstrate

that live music gets good ratings (as Mobil Oil demonstrated that British accents could produce good ratings), there would be live opera for television. The composer as contemporary artist is not regarded as a threat in television. He or she is just not in the picture as of now.

In the music establishment we are regarded as a threat. (I spoke at an opera conference a few years ago, making essentially the case I am trying to make here. A man stood up in the audience and said that if we followed these suggestions it would mean cutting back on Mozart. I said that I didn't think that Mozart would disagree with me and that considering the way he was treated he probably wouldn't care anyway. The man got very excited by this idea. He said that I should be put away. Somebody told me that he was connected with the Met. I have always wondered what he meant by "put away.")

It would be nice not be to a threat, to feel that your ideas, if they were wholesome and designed to employ people doing something they are proud of, would be tried out.

It is more likely that I will have a chance to make a work for television, with proper funding, with a mutually respectful relationship between me and the producer, with no compromise of the music to what technology is available, and made for an audience that can be expected to like the work, than that I will ever be invited to make a work for the opera stage. And even if the opera-house invitation came, what about those conditions of making the work? Can we imagine "proper funding," respect for the work, contemporary technology ("instrumentation") anywhere in the serious-music establishment? The only condition that we could be sure of is a grateful audience, and the composer has had to create that for himself or herself by building an audience outside of and in spite of, what is currently in place.

Is there really an audience for contemporary music?

With comparable publicity the Philip Glass Ensemble can outdraw most major symphonies, and, more important, his audience comes with something specific in mind. I don't do badly myself, though touring opera productions can make a person pensive. For most people who will read this book the question is rhetorical. Every one of these composers has a loyal following. It is what makes the world go round out there. My complaints about the musical establishment are not that it is a without-which. The establishment refuses to "make friends," is desperately greedy and perpetuates the schizophrenia in our culture that prevents the audience for contemporary music from having what it wants. There is a serious question about the reality of an audience for non-contemporary music; considering how much effort and public money is put into creating one, the situation seems force-fed. There has always been an audience for contemporary music, even when the audience had a hard time finding it. The advantage for the audience of the music-with-roots-in-the-aether phenomenon is that the music is easy to find, because the composer has taken the responsibility for making it findable. This has created a knowledgable and devoted audience across the country. Otherwise, the idea wouldn't keep growing. The

problem is that with the composer doing it virtually alone—that is, a large number of composers doing it with no substantial support except from the network that they have created—when the composer gets tired, the music is lost and the connections are broken one more time . . . Aether.

How about some good news?

The good news is that nobody stops. The idea is out that you can produce music somehow, and that the music is part of something. I don't know what to call it. It has nothing to do with an audience—although the audience is there—or with anything else outside of you. It's that whatever-it-is that made you decide to make music in the first place. The good news on the larger scene is that music-with-roots-in-the-aether has reached epidemic proportions. Everywhere you go in the United States composers have decided that they are going to do it on their own. There is a tremendous variety of musical "facts." The information network (what Pauline Oliveros refers to in her interview as "word of mouth") is very fast. But the scale of the reality is so large that people in one place are not intimidated by "influences" from another place. The much-feared homogenizing effect of technology—composers being more closely in touch with each other through travel and communication and sharing of instruments and software—has not come about at all; things have gone in the other direction, and there is more variety and surprise and originality and pleasure than anyone could have dreamed of a generation or even a decade ago.

Do you have anything else to say?

What follows are personal, unguarded remarks by a few of the best composers alive, and there is technical and "inside" information that is accurate and not otherwise available, written by composers, who know what they are talking about. Nobody in this book (except for me) cares, probably, if you read this stuff at all, so the reader doesn't have to be embarrassed by emotional obligations. All of the work was done as a favor to the music and, once done, put aside by thoughts of the present. Long since, everybody has gotten back to making music. These are portraits of composers who have made something out of whatever Aether is.

III

"Music with Roots in the Aether" is a series of interviews with seven composers who seemed to me when I conceived the piece—and who still seem to me twenty-five years later—to be among the most important, influential and active members of the so-called avant-garde movement in American music, a movement that had its origins in the work of and in the stories about composers who started hearing things in a new way at least fifty years ago.

There is, of course, our indebtedness to Europe. In spite of the obvious influence of the music of other cultures in our avant-garde, our music is still in a European-American tradition—probably because the American musical culture is so young

and because so many American composers have European roots. Even the extraordinary influence of African-American music in the avant-garde is through the experience of African-Americans-in-America. The story of African-American music and its shameful lack of recognition has been discussed in many other places. The European avant-garde is known about from unusual sources (if it is known at all): rumors, personal relationships with composers and such—certainly not (in the period up to 1975) from available scores or performances in the United States. But it is clearly different. So, what I wanted to isolate in "Music with Roots in the Aether" is the peculiarity of the American side of the story. I could not presume to know everything because my own experience is so limited. Thus, "Music with Roots in the Aether" is just about a special area in music, its problems, its sore spots and its triumphs.

The interviews themselves are casual and desultory. They had to be, because of the manner in which they were made. They were made in front of a video camera, with the rule that there would be no video editing. So, the composers are just talking. Then, the conversations are edited for print to take out as much of the conversational looseness as possible. I hoped to get in the transcriptions a free floating collection of remarks. Such a plan carries no argument with it. It makes, at best, a kind of splintered portrait of a few people whose lives and whose work I admire. It is almost coincidental to this intent that these same people have contributed individually and collectively to so much of what is the shape of serious music in 1999, not just in America now, but wherever American music is heard.

These are my friends. I love their music. They are among the most important people in my life. The portrait is shattered because I could not make it whole.

In a moment of rash ambition (I thought the book would be published immediately), when the interviews had just been finished, I asked younger composers—composers of the "next" generation—to write a set of articles that would complement the interviews. No rules were established about style. A young person writes about an older colleague. The article is addressed to the community of musicians among whom this music is most important. So, the articles are peculiarly technical and idiosyncratic, using the language and the attitudes that composers use among themselves. The idea is that each article is part of the portrait, too.

I would disavow, right off, the notion that any of these younger composers were chosen because their musical ideas are derived from or are in any way imitations of what they find in the work of their older colleagues. I picked the younger composers because I knew them and their work personally and, thus, because I knew of their familiarity with and respect for the body of work they were to write about. I asked them to be specifically technical, because at the time when this part of the project was alive there was virtually nothing in print about the technique of the new music. This was, again, twenty-five years ago.

Unfortunately, nothing much has changed since. Four of the subject composers,

Philip Glass, Alvin Lucier, Pauline Oliveros and Roger Reynolds, have published books about their ideas. The composer Thomas DeLio, whom I did not know at the time, has since published perceptive articles about some of these ideas, and those articles have been collected in two very useful books. Other books, in particular by Kyle Gann and William Duckworth, are very good. The aging but still lively journalist of the performance avant-garde in general, John Rockwell, wrote a book about living composers, and it is a valuable book, but his point of view is sociological, largely stressing the tragedy of the composer's situation; it is sympathetic, kindly, but rarely technical to any degree.

In the meantime the twenty-five years have passed for all of us. The composers who are the subject of "Music with Roots in the Aether" have continued with their work, accumulating reputation in varying degrees of notoriety and fame. I think they are all still more or less in a good mood in spite of the charms of approaching old age. The younger composers, who so generously gave of their time and energy in their writing, have gone forward with their personal styles and careers and, I am proud to say, have begun to challenge the reputations of the elders. All over the United States, in academic music departments, in organizations outside of academia and even in so-called "popular" music, the ideas have continued to spread.

My impression, circa 1999, is that the peculiarly "American" aspects of the music I intended to portray have come even more to the fore than was easily identified when I began working on the project. And my impression is that the European avant-garde is headed in a different direction now. One should be happy about this, I believe. The notion of an "international style" thankfully disappeared somewhere in the middle fifties. So, this is not a tract in the cause of "American" music. One hopes for as much variety as possible. It is just a portrait.

My ambition to publish this writing twenty-five years ago was "rash" because, considering the vitality of the music and its growing influence, I thought somebody in the music publishing business might be interested, if only for historical reasons. Finally, I got an offer. The money involved, had I gone through with the contract, might have covered telephone and taxi expenses. It could hardly inspire one to drop everything and finish the project. So, this preamble is, in one way, an apology to the younger composers, who actually believed me that the book would be published and who finished articles that involved a lot of time away from their own work, effort in an area that is not their "calling," extensive research and the ever lurking threat of being condemned for taking part in the project to begin with. It is also an apology to the composers of my generation who took part in the larger, opera-for-television project of the same name, "Music with Roots in the Aether," from which the interviews are extracted. The opera has not made it to "major" television, yet. Thousands of these composers' fans and new music lovers in general have seen the video tapes in closed-circuit presentations and in local cable broadcasts, and to that extent the collaborations were fruitful, but the idea in its larger version is still at

loose ends, and that failure on my part is one of the typical failures of large scale projects in the avant garde in America today.

The book is also rashly "spotty." None of us could pretend to professional quality in our writing or (in the interviews) in our spontaneous remarks about the techniques of our music. But that combination is too rare to wait around for. When there is no information and information is needed, you can't worry too much about whether the book is a great book in its execution. The purpose is to make available some kind of record of the thinking of the composers and the ideas of the music. My advice to the reader is: when the going gets a little heavy with too much jargon and sentences that don't quite work, just jump to some other place in the book. Treat it as an accurate but not too serious reference book. It is jammed with information and pretty lax about rules. Or treat it as a message, not quite decipherable, from some alien culture. This second approach would correspond to the treatment of the music itself (and the composers) and the ideas you would get about the music from reading professional "critics"—that is, specifically, journalists, who are (sadly) committed "professionals" (that is, hacks) and who have almost universally treated the music as though it were from an alien culture. And we know from, say, Stephen Spielberg, how dangerous aliens are thought to be by serious-minded people.

Time out here, before I get in too much trouble with "journalists," some few of whom may actually *review* this book. We are all "journalists" in an era of absolute horror: worldwide suffering and starvation, totalitarian governments everywhere, the guilt of our atrocities heavy on us all and the not-unrealistic threat of a nuclear disaster—which will render all thoughts of the problems of music and culture obsolete—and the realization that none of us, individually, can do much about the situation. Little wonder that we are divided against ourselves, that we find fault everywhere, that nothing satisfies us, that we try to escape, especially in our ideas about culture and music, to a more graceful (or, at least, less ominous) past. More than anyone, probably, composers and artists in general know that their ideas *would* be taken seriously, if the ideas were to be expressed, for instance, in the medium of terrorism or in the medium of politics in general. So, there is too much to be "done." Our specialization and isolation makes us obsessed with continuing specialization.

Alvin Lucier suggested that, if we are to expect our contemporaries in, say, literature, to know about and appreciate our music, we should be expected to read what they write as artists. I don't know how far he has gotten, but it looks like an impossible job to me. There is definitely a glut, and what is impossible to achieve, individually, in the real-world of politics is equally impossible to achieve in the world of the arts. Nobody knows anything. Rich and cultured people are almost unanimously as ignorant of the contemporary musical arts as the proverbial "truck-driver." Philip Glass complained that the situation for the American composer can never improve because the only thing Americans are interested in is television and sports. That got me, because the only things I am interested in (aside from music),

as a composer, are television and sports: television, because like music I can have it in my home; and sports, because like in contemporary music nobody gets killed. (In the music of previous generations it is indisputable that killing was a big deal. "Music with Roots in the Aether" tries to suggest that we have outlived that idea.) There are fleeting signs of "improvement." Television has taken up music as one of its minor subjects. Unfortunately, since television is still in the hands of "television" people and is largely "educational" in intent (what records to buy or what you don't know about the past), a lot of music-for-television is filled with violence of all sorts, as if to continue the idea of killing in our kids.

But maybe that will pass. Maybe the pressure of public opinion will make directors start insisting on using real bullets, and then, finally, tiring of the endless stream of non-celebrity faces, the public will start listening to music and start seeing it dramatized as one of the unimaginable achievements of humanity. I wouldn't bet on it, but it's our only hope.

Sports, obviously, doesn't need much of a defence from me. It has produced almost without exception the most humane-seeming, the most articulate, humorous and professionally generous celebrities of our time. No wonder we like sports. I observe with just a little envy that persons who only a few decades ago worked virtually as slaves (and who didn't make any better a living than the avant-garde does now) have *collectively* made a place for what they love as a way of life and have come out of that struggle with a respect for each other that is continually expressed in the most glowing and touching terms.

Alvin Lucier loves sports. Terry Riley is reputed to have been a pretty good sandlot baseball player. David Behrman is indifferent, I guess. I don't know about the opinions of Gordon Mumma or Pauline Oliveros. So much for sports.

Television is a different matter. I am, frankly, obsessed with television, not because I enjoy seeing people symbolically murdered and the unreality of the hero escaping at "point-blank" range while the bad guy gets it at Lee Harvey Oswald distance. At any indication of impending violence I change channels with the dexterity of "Blue" Gene Tyranny at the keyboard. But the multi-camera (multi-viewpoint) technology of television is so deeply related to the multi-viewpoint essence of music that, looking forward to the day when all television is "live," in my mind music and television are the perfect couple.

The history of "Music with Roots in the Aether" is so complicated and paradoxical for me as its author—so pathetically typical of the difficulties faced by composers in America in undertaking large scale projects and seeing them through to completion—that I have doubts that I have in any way succeeded. "Music with Roots in the Aether" is certainly just one of thousands of big ideas, dreams, desires, plans that composers have had since the beginnings of serious music in America that never really get finished, because there are no mechanisms of support in our society, yet, that the composer can look to for help.

I am not talking just about money, though that always appears to be the main problem. I am talking about the more complex—and unsolvable by any single person—problem of how to get the work produced and made available to the audience for which it is intended. That this problem can have disastrous personal effects on the composer's intentions even as the idea is being conceived must be obvious, but I can't go into that. The argument is simply that assuming the composer to be superhuman in optimism and good will—or just plain nuts—to the degree that the project is actually begun and the composer keeps believing in it and working on it, there comes a point inevitably when it must be recognized that the next obstacle is insurmountable. The sun is setting and the day is over. End of project. Depression. Chemicals. Suicide. Get a job selling something. Who cares?

Every composer knows this and knows all the reasons why. Spare the reader a long list of complaints against publishers and the more up-to-date media. The reason is that we are, apparently, too young and raw as a "people" to know how to make it work. And so our serious music, the audience for which is demonstrably enormous in number but spread all across a huge continent, is in a disastrous disarray, divided against itself, attacked on all sides by an almost universally stupid and ignorant "critical" press and dispirited to the point where one has to wonder how the music continues to grow at all. But like a sort of misunderstood teenager of great intelligence and promise, it goes on anyway, sometimes blinded in tears, often in trouble with all conventions of good behavior and without much hope, but destined to grow simply according to the laws of nature.

Landscape with David Behrman

"Extending our nervous systems"

We certainly have a bird's eye view of our surroundings now, Bob.

It's true.

Imagine, this is where we live. It's hard to believe. In the land of the Merry Pranksters eight years later.

And before them, the beatniks.

The beat generation.

That's where the Beatles got their name.

The Beatles?

Instead of being one of those pairs of people, we could be signal-to-noise ratio. Instead of "Mutt and Jeff" we could be "Signal-to-noise Ratio."

Which brings to mind Mimi's joke that the name Johnson, when it appears in pairs of names always comes second—as in Johnson and Johnson, Masters and Johnson, Olson and Johnson.

When you're making music, do you think of the people you're making it for? Do you have an audience in mind?

I guess I have an audience in mind that's basically my friends. The idea of having a large audience is so abstract—it's almost meaningless. I think that's probably true of you.

I think there's a part of us that wants to do it for just one other person.

But you could make music with a very private feeling and that private feeling could communicate itself to mass audiences.

That's what I don't understand, but I think it's true.

Well, the tape you made, *Fathers and Sons Exposed in Little Light,* has a very private feeling for me, and yet I don't see why eighty-three million people couldn't enjoy that private feeling. Solitude could be a universal treasure in a crowded world. [*Fathers and Sons* . . . was released as *Automatic Writing.*]

I've noticed that there's a certain size audience I feel most comfortable in, and that changes over the years.

Well, what do you think that means? If you think of what you do as being for a small number of people to listen to at one time, it could still be a large number over a period of time. What would it mean if it's a small number of people? That wouldn't mean that it's elitist would it? I mean, obviously not.

I've thought of it that way but I rejected the idea. It's so private. Your experience of music is so private if you want it to be.

That would go along with the idea that every person is the center of the universe. Didn't you say that you could tell by listening to music how large the audience was that the composer had in mind?

I think that I can. I've always felt that I could. It seems to me it's something that's made in the music. It seems to me that that's one of the things that music's about.

It wouldn't say anything about which is better?

No.

Music for a small number of people would be no better or no worse.

Oh, no better and no worse, certainly. Some kinds of audience are really not possible for me—maybe not for you either—and that makes me desire them, but I can't imagine that it would really be that much different. It's very difficult for me to imagine that fifty thousand people would be a different experience from fifty.

Except the physical circumstances would have to be so different that it might throw off what you're doing as a performer. I've noticed that there's a simple relationship between the number of people performing and the audience. If you have a large orchestra—well, not a large orchestra, because that's different—but if you have a large amateur group performing, you always have a large audience because each amateur brings his friends and family. So maybe if you had a huge amateur group that would be a way of attracting large audiences without making popular music. You would only have to be popular with all the amateurs in the group.

You would have to be popular for non-musical reasons. Which brings us to the question of personality. Would you say—allowing that we have no way of knowing what other combinations could possibly be and we always look at a fixed combination of personalities and music—that certain kinds of personality create certain kinds of music?

Yes.

Do you feel that as a personal burden? Do you feel that your personality is in your music and that you're trying to put it in or trying to keep it out or you don't care, or whatever?

It probably gets into what you do more and more as you get older whether you want it to or not. If you're imitative, the definition is probably that your personality isn't in your music—as long as we prize the idea of originality, which is built into our culture, isn't it? That may be in question now, but don't we still look for originality?

We look for it in ourselves if we don't look for it in other people.

So if we're looking for originality, that would mean that your personality is in your work. To say that your personality weren't in your work would probably mean that you're being imitative or that you're not doing your own work. And yet the work could be very objective. It could have nothing to do with personality.

That always seems like such a blind spot. If your music is so obviously a reflection of you, it seems strange to tell anybody, including yourself, that your music is really about something else.

Well, I don't know. You wouldn't speak of a scientist who invents a vaccine against some disease as not having performed a creative action, even though he might not have his personality in it.

But, is it possible for his personality not to be in it? I thought that is what scientists were going through, and that they're thinking of that all the time. They're going through the same things that musicians went through when musicians were pretending that . . .

. . . there's a right way and a wrong way.

And that there was no personality or there was personality, or whatever. I've gotten the impression from just reading about science that scientists are concerned now about personality. We were convinced that science didn't have it, I guess.

That it was just the march of technology and anyone could do it. I spoke to a physicist recently who said that the bottom had dropped out of physics. It was thought to be an exact science. They were about to find the last particles, and then it was like a joke was being played on them, because they would find tiny particles inside what they thought was the last particle. And now they have strange irrational attributes, like "charm." If scientists are thinking of themselves as doing more personal work, it's possibly true that the arts are going to take over areas that used to be considered scientific, like healing, which would be related to the medical profession. Medicine was considered a very scientific, objective field. Now you might develop some incantation that would have healing properties we'd arrived at not by scientific means at all.

We know that. There are records of it.

Pauline Oliveros' work is involved with that, obviously.

But does she say that it involves some physical change?

Well, it seems that her *Sonic Meditations* are involved with the physical state of the body, which would be a kind of healing.

Mary Ashley has also been involved with healing.

Yes, that's right. As an electronic composer I sometimes wonder whether the next step would be to detect with electronics psychic phenomena that have been beyond science.

Bob Sheff says that you can. He's been working a lot with the idea of spirit voices.

And Tom Zahuranac has been working with detecting emanations.

Tom aimed his four telescopes at space and attached them to his synthesizer. He decided that he would be able to detect the difference in what the synthesizer was doing over a period of weeks, or whatever. He just kept everything going all the time and he just kept listening to whatever was around. Could you talk for a while about your ideas about performance and your ideas about the way performers play your music?

Well, after working with electronics alone for a while, it's become more interesting for me to combine it with acoustic sounds and with other media. I've been working on home-made electronic equipment which deals with pitch-sensitive circuits and

pitch-sensitive operations in which a player would sing or play a pitch and the pitch would activate some kind of electronic music device. I think that idea is based in some of the things that electronics can do in extending our own nervous systems.

There's just the slightest difference between that and the clouds in the cloud piece. [*Canadian/American Sky*, a collaboration with Bob Watts and Bob Diamond.]

The cloud music was an idea of Bob Watts, who is a rather old friend of mine. He had the idea of having clouds passing across the sky make changes in music. He has always been a very versatile artist who's worked in many media, but he hadn't worked with electronics; he had worked with everything else except electronics. He asked two friends to collaborate with him on this idea; one was Bob Diamond, who is a video designer-engineer, and the other is me, who had been working with electronic sounds. So that idea of Bob Watts' and the pitch-sensitive music idea are related in that they're both involved with the idea of one thing causing another—one kind of change causing another in a way which can be realized through electronics. But it seems almost that the idea of clouds making changes in music are ancient ideas.

Ancient, in a really ancient sense?

Well, it could have been. It has that feeling to it because it's such a simple idea. And to be able to do that is something which is possible with electronics. The other musical idea of having a player or a singer articulate a pitch and having that pitch recognized by a circuit to call forth electronic sounds would also be a modern electronic idea, but maybe an ancient image: the idea of calling forth an answering voice, something like an echo. A few years ago, I knew someone who was an electronic engineer. He advised me one day that it was very foolish to try fiddling around with circuits to make music since I couldn't possibly work with those things without an engineering background.

That is just an idea of specialization. Everybody knows that idea. That's the opposite of what we were saying about healing, that medicine . . .

. . . is not reserved for experts who've been trained.

Music has tried that. A lot of people that we know have tried that idea of not making music a very skillful thing to do—not putting that kind of emphasis on skill. That's been very much a main idea.

Frederic Rzewski always says that a tin can is just as good as a hundred-thousand-dollar synthesizer as a musical instrument.

Do you think that your music's becoming simpler? Do you have that feeling of trying to simplify it?

Yes.

Everybody seems to be very much involved with that idea.

Maybe the idea of being complicated came out of the avant-garde, the European avant-garde. I mean, wasn't that an unspoken idea, that it would be pretty complicated? Post-Webern, post-serialism.

Yes. It was difficult for me to resist the temptation to be simple by regressing, taking a different position. But I definitely feel that I haven't wanted to change. I don't care about that.

Being simpler wouldn't be related to reaching a larger audience?

No. It's just what you said. The idea is not to be complicated.

Then of course it's a question of complicated on what level. La Monte Young's *Two Sounds* would be the extreme of simplicity, but you could have a very rich, complex experience.

I would say that would be an ideal—the simplicity of the means to give you that experience.

I'd like to do electronic music where the circuits might be very complex, but they'd make some result which would seem very natural and simple.

Do you think of your music at all politically? Do you pay attention to that aspect of your music?

I think we're all interested in removing the profit motive from the making and distributing of music. And I certainly would like to do that too. That would be political because the music industry is an industry like the other industries. Most of it is profit making, and it seems that for somebody to make a profit from anything is an obsolete wrong idea. So I think it would be political to remove the profit motive from music. If you could have some ideal similar to the Berkeley food co-ops, where something's provided to people that there's a need for, first you'd hope that your music could be used by other people, and then, if they could, you'd hope that you could distribute it on a non-profit basis. That would be a big political change in our society.

On the other hand, if work needs to be done, and if music is not your financial work, it makes you a worker in other types of work for the state.

Providing something that is in some sense useful.

Or it would have to be other things that were useful. I mean, music is useful, but . . .

I think you have to be careful about using politics in music, in that you don't fool yourself and do something which is a symbol of a political act but not really a political act. For instance, the Center at Mills, which is a public access, non-profit music organization, is probably more of a political act than composing a song with a political text if that political text were performed for your friends who already felt that way.

Oh, certainly. Do you feel like you have to think about your music again in light of ideas like Cornelius Cardew's, or others', that are around now?

Well, the ideas in Cornelius Cardew's book are very well expressed, but they have more to do with the European avant-garde of the sixties than they do with California in the seventies. And yet, I think a lot of what he says has relevance here too. I think that there's a period now in which many artists are re-examining their work in a political context. Not only artists that we know, but in the arts now in general.

I would think so. It seems to be a consideration beyond fashion certainly. You have to consider where you perform. I know you think about that a lot. The idea of simplifying the music goes along with the idea of making ways for people to take part in the music without making them feel inadequate, or anything like that.

I always feel wrong if I'm making music that directs other people. It doesn't feel right that the other people in it have to work very hard, because it shouldn't be hard work. So that would imply something stylistic about the kind of music I'm trying to do.

I wish we could talk a little bit about the ideas of Music with Melody-driven Electronics *that you're going to record. Just describe it if you could.*

There's circuitry which, first of all, reacts to the presence of a pitch, when a pitch is played. And it recognizes other pitches when they're played. And then it does a number of things in the electronic circuitry which can affect the loudness of electronic sounds and the tuning of electronic sounds, each of which responds to different pitches. It makes a music which is very harmonic. In fact there's nothing in it except harmony in the sense of many pitched sounds together. And it uses simple circuitry which isn't available in synthesizers because it's not of general enough interest. In other words, the electronic circuitry is designed to do a particular thing which probably wouldn't interest anyone else, and the only way to achieve that is to avoid synthesizers and use some custom circuitry. We're working out a loose verbal arrangement for the continuity of the hour that the piece will occupy on the video tape. Because, as was discovered years ago by jazz musicians, it may be a happier musical situation to not have to be reading a score, whether the score is in words or notes.

Is there a specific kind of harmonic system or field or combination that happens for the specific pitch? Or is it that when you perform a certain pitch a kind of change is made?

They're present so that if a pitch is played you'll hear one of about eight different possible combinations of electronic pitches, depending on what the electronic operation is doing. So there's a small number of harmonic possibilities.

But there are differences in performances.

Yes, and the form of the music is kind of a slow unfolding of the possibilities in the system, starting with fewer possibilities and ending up with the most possibilities. Your idea of video taping these works by musicians—it's more than that isn't it? I know in my own case, the fact that it's going to be videotaped has led me to some decisions which I wouldn't have come to if it were just audio. So it's an idea of decisions which I wouldn't have come to if it were just audio. So it's an idea of documenting musical works using video. And yet the arts being what they are now would make it impossible for me to just think about the recording process as an audio recording process. I mean, to just do the same thing that I would do in a sound studio would seem to be partly missing the point.

Obviously I want a video audience. I want an audience that sees what we're seeing. I've been very interested in the questions that I wanted to ask people because I thought that ideas like personality and the things that we've been talking about have become more important to composers. Do you think of what your music looks like when you're considering the music—when you're imagining the music?

I really do. And that's the reason why I got much less interested in just my sitting at a table and twirling knobs. The whole idea that music is a field which is separate from the other performance arts seems a narrow definition by any time's standards, including this time. It seems that most of the younger artists, whose work I had a chance to be in contact with this year, adapt just as easily to one medium as another. It's almost as if the idea of being just musicians or just photographers or just video artists is too narrow.

The idea that you could just break down those categories in yourself seems very strong to me.

Well, recent studies in perception suggest that if you think of experience as an organic whole, the idea of making sounds but not sights is arbitrary. You might choose to do it. It might be a beautiful, strange thing to do, but it doesn't seem natural.

Have you tried to change your music through the imagination of it?

Oh, yes. You mean to imagine how it could be different? I think we tend to narrow our possibilities as our technique improves in any given medium. That seems to be a tendency among artists. When you start out, if you're in your twenties, you can go in any of several directions. Then, as time goes by, you work in one. You tend to refine your style and refine your technique. And then you get into a dangerous situation, where something is expected of you, and to break out of that is going to be a big shock to yourself and to people around you. So it's always reassuring to find other artists who have made radical changes in their styles, several times.

Like going to South America. Phil Glass said he thought he wanted to stop writing music. Just stop.

For a rest, or . . .

I think he meant just stop. I like that.

I know what he means. I was thinking you'd have a happy musical life if you could either make music which was rather easy for performers or it would have no performers in it at all, which you can do now. I'm thinking of music as sound-sculpture, like in the cloud piece, or like the *Pygmy Gamelans* of Paul DeMarinis.

And the Parrot Pleaser.

And the *Parrot Pleaser*. I'm trying to think ahead to a time when what we do will seem very old-fashioned—trying to imagine what would be next.

Sometimes I think of myself as being very old-fashioned, and really worrying about it a lot.

Well, I don't think you have to worry about that. Weren't you polling younger

composers about a year ago with a question, "What would you like music to be like when you get to be my age?"

I haven't finished that.

I think we're looking at the place where the East meets the West.

I was just thinking, did we talk about the harmonic quality of the music? We did, didn't we?

Maybe we didn't get to the bottom of it.

Drifting Harmonies

by Paul DeMarinis

A: At one time cooking was the high technology. It had survival value. Now it's all traditional, and it's all ethnic; you learn it from your ancestors.

C: You can always tell when somebody's doing a ritual. It's like Hollywood.

B: That's the big vision, isn't it? The global concept: everybody's ethnic.

A: But you never know if people, say, in the Solomon Islands, know . . .

C: Every time I need to know something about computers I have to ask someone younger than me.

B: You mean if what they're doing is . . .

A: Well, that too, but what I meant is that without some definite symbolic history they probably don't ever . . . can't think about what, or how, they learn. For instance, people in primitive societies without photography have no clear idea of their own individual aging process, where we're obsessed . . . think of Hollywood, or *Glamour*.

B: Machines have changed all that.

A: Somebody'd better go and warn the artists.

B: Popular Culture. The new tycoons.

C: Crime.

B: Oh, hi, "C." Didn't see you there.

A: My idea was that the same thing is happening to music. As music becomes less and less a technology, it's getting more traditional; people learn it from their elders. Music becomes a thing, rather than a technology which can be applied usefully to various situations.

B: You mean this: that at one time music, or cooking, were undedicated technologies like, let's say, engineering is today, and that they were used for various purposes, say love, education, crime and so forth. That is, nobody really characterized all those activities as being "cooking" or "music."

C: Some of the nation's best cooks live in Southern Alameda County.

A: Absolutely.

B: That, of course raises the question: since we know what the dedicated application of cooking is, what is the dedicated application of music?

A: Exactly. But then it's also possible that these things don't all proceed in a linear development. There may be rediscoveries of "primitivism" and besides, the comparison of cooking and music making isn't necessarily rigorous; music's already

a noun without needing to be reified.

B: Oh.

C: Junk food causes distuning.

B: Somebody told me that children in most parts of the world can sing in tune naturally. I mean, like you pointed out, if it's thriving, it doesn't have to be learned. Hmm. I wonder, before science became such a big deal, if the notion of experimentation was foreign to music.

A: Actually, Galileo's father, a musician who designed his own instruments, is now credited with having invented the basis of the "scientific method" as a tool for his work with lutes, and his famous son applied it to balls rolling down planes.

B: Oh, but I mean, back then, when their music changed, I mean, when they made a conscious effort to change their music, how did they think about it? How did they explain that? Or, wait: there was nobody to explain it to. Nobody even had the idea that things changed . . . no, that's ridiculous. I don't think that.

A: Well, we really don't know if, say, the pygmies are aware that their music changes, and we know that it does. Collin Turnbull managed, with much difficulty, to get an ancient pygmy woman to divulge what she swore to be the oldest and most sacred of pygmy songs. And do you know what it was? "My Darling Clementine." Anyway, back to the real point: in our consumer society people are no more able to make their own music than they are to, let's say, bake a Hostess Twinkie at home. Can you imagine what it takes to bake a Hostess Twinkie? The ingredients are all chemicals you can't even get in quantities less than a ton.

B: You know what it's like? It's like living in a colony.

C: How can you be sluggish and distractable?

B: It's like living in a colony: we used to carve ivory, but now they give us blocks of plastic, already hard, to carve.

C: Making sure that genius stays local.

A: Poor people make their own music. It's clear whom that music's for. It's the middle-class who need a musician class to make their music. It's a kind of acquired helplessness.

C: Stars.

A: Like the garment industry in India before Gandhi. All imported from industrial England. Mass produced. Gandhi reinstated the cottage industries.

B: But it seems unrealistic. It doesn't change who's in power. As our culture becomes more and more informational, the illusions become ever so much more tantalizing. It begins to seem as though certain information would give you vast amounts of power, but it never pans out. Whoever said that knowledge is power was wrong.

A: I just learned that the actual equivalence of information to energy is on the order of 10000000000000000000000 bits per calorie. That's more than anybody knows.

B: A star is exactly what nobody wants to be. It's an idea that people have to be sold on, and everybody is.

A: I don't follow you.

B: It just dawned on me. Nobody wants to be a star. If people wanted to be stars, nobody would be trying to sell the idea to everybody.

A: The sense of what you're saying eludes me. I hope "D" shows up soon, so we can start. Oh, I just remembered, and I want to tell you before I forget. Remember when we were speculating on why it's always possible to date a recording from the sound of it, and you mentioned that you'd seen a photograph that you knew was old, not by any stylistic cues, but because, you said, the expressions on the faces of the people directly reflected the world they were looking at.

B: Yes, the picture of the two Javanese musicians. I . . .

A: O, here's "D" . . . "D," how are you?

D: David Behrman began building electronics because the devices he needed just didn't exist, or because they were too expensive, or because it was a possible direction. Right off, no one of these explanations is sufficient, because when we examine the pieces right down to the level of circuit design and construction, it's clear that there's a highly individual style developing. The first and most obvious pointer is numerical. Behrman consistently uses a huge number of oscillators.

A: It used to be "oscillators" you had to know how to spell; now I think the word is "address."

D: David Behrman started building electronic circuits to use in his music in 1966. His first major work using home-built electronics is from 1967, called *Runthrough*.

B: What's in the circuit?

D: It included two oscillators and one "store-bought" voltage-controlled gain circuit connected so that the audio frequency oscillator was gated by the low frequency oscillator, I think about ten or twelve hertz. The subaudio oscillator was built around an exotic four-layer diode, one of those space-age innovations of the 1960's that became almost immediately obsolete. An interesting thing about the *Runthrough* circuit is that the audio oscillator gets frequency modulated too, because the VCA [voltage-controlled amplifier] presents a varying load to the oscillator output as it gates the signal on and off, and the oscillator responds by changing pitch. It contributes significantly to the overall sound of the piece.

B: Was that an unintentional side effect, do you mean?

D: As far as the manufacturer of the VCA circuit was concerned.

A: Ten years ago nobody knew how to listen to electronic sounds analytically.

B: So Behrman discovered this quirk of the device and used it. How was the piece performed?

D: It had six performers, with six of those circuits. Each performer could play the settings on his circuit, and had, in addition, a photocell mixer to route the signal from the circuit to various loudspeakers.

B: Sort of a "panning" effect . . . How were those mixers "photocell?"

D: Well, they're made from a can, like an orange juice can, or any kind of can like that, with four photocells at the bottom, like this. You know, photosensitive resistors. All of them had the same source, the signal from the oscillator circuit, and each of the outputs, from the photocells, went to a different channel of the mix. So then all the players had to do was to shine a little penlight flashlight around the bottom of the can and the signal would pan around the room.

B: Did he make that circuit too?

D: Actually Rzewski invented it. Behrman used this mixer in some other pieces, too. *For Nearly an Hour*, which he did for Merce Cunningham used these photocell mixers to pan natural sounds around in space along with the movements of dancers.

B: What sort of natural sounds?

D: Niagara Falls in winter.

B: Does that sound different from Niagara Falls in summer?

D: Ice.

A: Actually, they probably ate the same diet that they ate the rest of the year. Dried meat, dried berries, dried corn. In *Hunger and History*, Prentice maintains that people in primitive situations ate essentially a diet of protein and sugar/carbohydrate, almost nothing in the way of fresh vegetables, even when they were plentiful.

B: Sort of like hamburgers and coke.

A: Exactly. It's probably true that mankind's knowledge of which fruits and vegetables are edible is really very recent, within the last few hundred years. They didn't experiment around a lot.

C: No hospitals.

B: When it comes to cooking, everybody's a conservative.

A: I guess we sort of drifted.

D: That's okay, I was just collecting my thoughts, and it occurred to me that probably most of the electricity for David Behrman's music came from Niagara Falls.

A: Until he moved to California. Wonder where they . . .

D: Anyway, he did a version of *Runthrough* later, in 1970 called *Sinescreen* that added a tuned drone of sine wave oscillators as a background for the other sounds.

B: More homemade circuits?

D: Yes, the sine wave oscillator was, I believe, a Wien Bridge circuit! and used a FET [field effect transistor] as a gain stage. 1970 was still prior to the availability of most of the integrated circuits that Behrman is using now. It all happened very fast.

A: Don't be afraid to get technical.

B: Just one thing, is the piece you're describing, *Runthrough*, a one-time performance, or was it performed repeatedly over some period of time?

D: Probably between *Runthrough* and *Sinescreen* the piece was performed thirty or forty times, in various situations, changing some each time.

B: I was asking you that because, before you got here, "A" and I were talking about how people go about deciding to change their music. For instance, in the Solomon Islands, I think he was saying, the people use the same song over centuries and just change the lyrics to fit the times. Where they used to lament about sharks or bad fishing, they now lament about getting thyroid cancer from fallout. And we were thinking that perhaps in the case of an individual making music, the reasons that prompt change are not necessarily a "personal" version of that same process. Isn't that so, "A"?

A: Don't look at me.

D: I understand what you're saying. It all seems so much a matter of individual taste, when I think about all the people . . . I don't know. That's an interesting point. I do know that David Behrman has developed several pieces over a period of years and I think that in all of that there's been a tendency to work on the materials of the pieces in such a way as to get them closer to the original idea he had. When I say "idea" I mean it in the same sense of those ideas we all have that seem, at first sight, impossible.

A: Maybe we need a new word, something to replace the "idea."

C: "Reon."

D: There are a number of pieces that he didn't pursue.

A: Like what?

D: *Counterirritant*. He made a four-channel tape of a four way conversation, so that each track of the tape contained only one of the voices. He had four performers sitting around, in performance, each with a transcript of the conversation, and a microphone and a switch, so that each person could switch out what he or she had previously said and replace it with something else.

B: The fat is in the fire, as they say.

A: You know, "D," I've been kidding "B" about his tendency to quote, or just coin little phrases, aphorisms . . .

B: That's just . . .

A: . . . before, he was saying that "genius is always local." How do you think that that . . .

B: No, no, that's just, no, that's just, I think that my tendency, like you said, that my tendency to make aphorisms is just a midwest-ism. I think it's a trait of that particular culture. All the Germans. And besides, I didn't say "genius is, whatever," I said "wit is always regional." There's a difference.

C: They're listening on Mars.

A: I recall hearing somewhere that David Behrman is a very witty man. Wasn't his family in vaudeville?

D: Gee, not to my knowledge.

A: I guess I was thinking of someone else. Does his wit emerge anywhere in his music?

D: Well, I know that his piece called *A New Team Takes Over* has a strong satirical element, political satire.

B: I never heard of that piece.

A: When is it from?

D: Well, actually, the first version was called *Questions from the Floor* and was from the summer of 1968, during the conventions. He performed it at the Rose Art Museum in October of 1968. But then, after the election he changed the title to *A New Team Takes Over*.

C: It was Feldman's brother.

D: I think that the way it works is that the performers have earphones on and over the earphones are played statements by political candidates; I guess the candidates themselves speaking, and the job of the performers is to mimic the statements, the idea being that if you really hear what they were saying, it would seem ridiculous. Kathy Morton said that she performed it once and ruined it because she couldn't stop laughing. She said she felt very unprofessional.

B: It seems that this piece has something in common with that other one, *Counterirritant*, I mean, performers having words put in their mouth.

A: Oftentimes a certain image—maybe that's the word we wanted instead of idea—carries over through a number of different pieces.

D: That's true. Sometimes it's hard to say where one piece ends and another begins. David Behrman's pieces during the last five years, including the one we just heard, have all used all or some portion of a bank of thirty-two oscillators designed around the Signetics 566 voltage-controlled oscillator. I believe that he built it in 1972 and first used it in a piece called *Pools of Phase-locked Loops*, which was commissioned by Radio Bremen.

B: What's a phase-locked loop? I've heard that term before, but I've never heard it explained.

D: Actually, in this case it's a misnomer, but since Behrman used phase-locked loop circuitry extensively in other pieces I'll be talking about, like *Cloud Music*, this is probably a good time to discuss the basic idea.

C: Where does the part come where you try to trick us into thinking that certain things we've always classed as techniques now constitute a style?

D: The phase-locked loop is a frequency-detecting device that uses a voltage-controlled oscillator and a phase comparator to compare the frequency of in incoming signal with the output of the VCO [voltage-controlled oscillator]. The comparison results in a voltage which is used to adjust the frequency of the VCO so that its frequency tracks that of the incoming signal.

B: Come again.

D: Remember that a difference in frequency must result in a difference of phase.

A: What about octaves?

D: PLL's [phase-locked loops] can be fooled! but we'll make use of that later.

What I want to point out now is that the PLL is essentially another referenced system; it does whatever is necessary to emulate its environment.

A: We were talking about that . . . with chameleons or whatever other creatures that use protective coloration, that they must have a very clear idea of what they look like, better, in fact, than most people . . .

C: Like people in bus stations.

A: . . . to find a place that looks like them.

D: Well, there are two kinds of systems, those that adjust themselves, and those that seek out a place that suits them. The chameleon and the phase-locked loop are the former type.

B: They must have some way to remember what music they changed, or they could get completely lost.

D: In the case of the phase-locked loop the memory is a low pass filter network that smooths out the phase-difference pulses and keeps a charge proportional to that difference. That charge is the difference voltage and the greater it is, the farther from its center frequency the PLL is. I don't know what chameleons do.

A: What do you mean by "center frequency"?

D: The center frequency is what the VCO would put out if it were on its own, without an external signal. At any rate, that's the basic idea of the PLL and you can probably begin to imagine that it might make possible a different answer to the question of how to organize a large number of oscillators.

B: I don't see what you mean.

C: Foster children.

A: I understand. Some new reasons for harmony. In the conventional orchestra each player has one oscillator, or is one oscillator. They're all following one conductor and one score. In that situation good voice leading is a gratuity to the players that makes each individual's life easier.

B: You mean that stepwise progression is easier . . .

A: More energy efficient . . .

B: . . . than big leaps.

A: Of course. But you've got to consider that natural overtone progressions are oftentimes more energy efficient acoustically on the actual instruments.

B: So you think harmony was a sort of compromise between those two things.

A: That harmony was. Now consider the situation "D" has suggested. Each oscillator can change to match in pitch another oscillator, and can also remember how far it went to get there. From that point it could return to home or call that new tuning "home." The beauty is that all the oscillators could reference to some single source or to each other.

B: I see what you mean. Is that what's happening in Behrman's music?

D: I think some of those observations are useful. The pieces which use the "homemade synthesizer" with thirty-two oscillators all use the principle of tuned

harmonies which drift with respect to one another; one whole chord will gliss up to another fixed chord, slowly, without ever producing any sense of discord.

B: Like the pedal steel guitar.

A: Are all of the pieces which use the "homemade synthesizer" pitch sensitive?

D: The first two pieces he did with it aren't. Those are *Pools of Phase-locked Loops* and *Home-made Synthesizer Music with Sliding Pitches* used, in addition, to the thirty-two oscillators, eight voltage-controlled amplifiers and eight envelope generators, which were actually low-frequency triangle-wave oscillators. The oscillators were tuned in groups of four and slowly faded in and out by the VCA's, so that several groups were on at a time. Meanwhile, the banks that weren't playing were being tuned to new harmonies.

B: Were they monitored separately for the tuning?

D: No, Behrman uses frequency counters for the re-tuning during the performance. Also, I forgot to mention, each bank of oscillators was also frequency-modulated by the same low-frequency triangle wave that was operating the VCA. There was a pot for each frequency and amplitude control.

A: How were the pitches organized? I mean, how were the intervals determined?

D: Behrman made charts of the frequencies to assist him in tuning changes during the piece. The harmonies consisted mostly of simple just-intoned intervals, with octaves slightly distuned to avoid locking.

A: I built some oscillators once and ran them on a nine-volt battery and they locked together beautifully.

D: Another tuning consisted of "large" major seconds, you know, nine-to-eight ratios, producing a very "impressionist" kind of sound. Like Debussy.

B: I got that feeling from the piece we heard. It's very beautiful music.

D: Yeah. As I was saying before about the drifting harmonies, that depending on the degree of frequency modulation from the slow oscillators, the tuned harmonies drift with respect to each other, thus the title . . . *Music with Sliding Pitches*. That sound is unique and characterizes all of these pieces. I think that it's this quality that's really enabled Behrman to use really rich harmonic material without having to deal with all the weight and forward direction usually associated with harmony.

B: Without gravity.

A: But the amount of equipment gets huge, and weighty.

D: No, not really. All of the equipment for this and the more recent, pitch-sensitive pieces is pretty small and light. For the whole of the time he was building these modules, David Behrman was touring a great deal with the Sonic Arts Union and with Merce Cunningham, so everything had to be not only portable, but literally carryable. Aluminum boxes with small knobs and switches, RCA jacks for inputs and outputs. One way the homemade electronic devices of Behrman and other composers differ from conventional commercial synthesizers is in their economy of hardware. Commercial systems are designed by engineers who have little in the way

of explicit expectations for the output of the device, and consequently are designed to accommodate a wide variety of "patches." Thus there'll be a pot, switch, input or output associated with every function. It's assumed that compositional decisions are made very late in the game, and that the choice of hardware is pretty much one of instrumentation. In Behrman's work, though, we encounter quite a different set of sensibilities. The piece is conceived from the start as a total process and the electronics are designed to carry out that process.

C: Amen.

B: Could . . . *with Sliding Pitches* have been done with a conventional synthesizer?

D: Well, no. It would take five or six very large synthesizers to get that many oscillators, and other functions that Behrman uses just don't exist on synthesizers. It's a matter of proportion and of function.

B: How did he actually learn the electronics to build these things?

D: Through reading, trial and success, and, I think from a long period of correspondence with Gordon Mumma.

A: Tell us something about the pitch-sensitive pieces. I've always heard that pitch followers are pretty difficult circuits.

D: Again, it's one of those situations where indecision, or putting off compositional decisions 'til the last moment, or for someone else to make, causes the whole problem to become a lot more complicated than it really needs to be. If you know which pitches you're interested in sensing, the whole problem becomes a lot easier. In this case, Behrman used a high-Q twin-tee bandpass filter tuned to each specific pitch he wanted to sense.

A: What keeps the filter from responding to any load transient?

D: A compressor. Okay, let me go through the pitch sensitive circuitry in detail, and then I'll describe the performance. This circuit was designed in 1973 and uses pretty much the most common integrated circuits then available. There's nothing exotic.

A: Like the four-layer diodes of *Runthrough*.

D: It's mostly op-amps, 5558's which are duals and 3401's, quads. There's a 555 timer, and an MFC6040, that's the same integrated VCA used throughout the "homemade synthesizer." It might be obsolete by now, but still it's nothing unusual. Probably the total parts cost for the circuit is ten dollars.

A: How much did the synthesizer with thirty-two oscillators cost?

D: Probably close to five hundred. There was a small grant that helped pay for that. It'd be a lot cheaper now. At that time 566's were new and cost nine dollars apiece. Now they're about two dollars apiece.

B: Is that because they've been replaced by more modern types?

D: Not really. It's not unusual for an integrated circuit to cost twenty-five dollars when it first appears, and cost fifty cents two years later. It's a function of the

quantity produced. The more useful it is, the more are produced and the cheaper they get. Integrated circuits are made on silicon, so they're not dependent on rare natural resources or subject to supply and demand equations.

A: All the manufacturing costs are in the initial design. After that it's just photolithography and automated testing and packaging. No moving parts, just information.

D: Anyway, back to the pitch sensitive triggers. The first stage is just a microphone preamplifier with a gain of about fifty.

B: How can you tell that? Is it stated on the schematic?

D: Well, yes, just from looking at the resistor ratio! 10k to 470k . It uses half of a dual op-amp. The next stage is the compressor, which serves to neutralize amplitude variations, and cut down on loud transients. That uses the other half of the dual op-amp [operational amplifier], plus a FET. Then there's a tunable resonant filter using three op-amp stages, and an envelope follower so what we have so far is a circuit that amplifies the microphone signal, compresses it, looks for a particular frequency in the signal, and generates a DC voltage which is proportional to the presence of that frequency. Then comes a threshold comparator which compares the envelope-follower output to a reference voltage so that when the right pitch is sensed, the comparator turns on a 555 timer for some fixed period. The 555 switches on the VCA, the MFC6040.

B: What's it all add up to?

D: It's essentially a circuit that responds to the presence of a single pitch by turning on another sound for a fixed period of time. Remember, there's an instrumental performer behind all of this.

B: Right, I forgot about that. So that when . . . so, the player plays along and when he hits that particular note it causes the circuit to turn on some other sound over the loudspeakers.

D: Right, the sound in this case being the just-intoned harmonies made by the homemade synthesizer. Also, there is more than just one pitch sensitive trigger, and there can be several instrumentalists.

B: I get it. The player generates his own accompaniment. Every time he hits one of those notes the synthesizer plays an accompanying chord.

A: Which pieces are we really talking about here?

D: Well, everything up to and including the piece we just heard. It would describe *Net for Catching Big Sounds*, *Voice with Trumpet and Melody-driven Electronics*, *Cello with Melody-driven Electronics* and the piece you will see which uses a microcomputer to recognize patterns of melodies, to change tunings and do some other things I'll describe in more detail later. The pieces sort of flow into one another.

A: Yeah, it's hard to say where one piece ends and another begins. I have a couple of more questions about all this. One is, is what the player is playing scored? The

other is, how does he avoid a one-to-one correspondence between the sounded note and the accompanying chord from becoming obvious fairly soon? Maybe those questions are tied up together.

D: Well, to answer the last part first, the actual tunings are getting changed during the performance, you'll recall, so that different progressions of accompanying harmonies occur, and also there are notes in the scale which don't have pitch sensitive triggers associated with them, so that melodies can be written to imply different kinds of movement among the tuned chords. What was the other question?

A: Whether there's a score for the player. You referred to "writing" melodies.

D: Sometimes, sometimes not. Say, can I use your phone? I've got to make a few calls and it's getting a little late, so . . . Look, here's a page of melodies from *Cello with Melody-driven Electronics* you can look at while I'm gone, and when I get back I'll give you some details about the piece that uses the computer. I'll just be a few minutes. They're all local calls . . .

C: The bird who phones catches all the worms.

B: I'm really glad we had "D" over. The really interesting thing to me about all this is that composers who build their own instruments, at least in our culture, have pretty much been represented as eccentrics. I mean, it's something that only the eccentric composers, like Harry Partch, have been into.

A: You wouldn't class Behrman among the eccentrics.

B: No, certainly not. He's definitely mainstream.

A: But he doesn't write music that other people can play, say the New York Philharmonic.

B: Neither does anybody else, except people who set out specifically to write for the New York Philharmonic. To get a job.

A: No, I was just playing the devil's advocate, because of your defensive claim to "mainstream." I know what you mean, but really, it seems to me that putting music into a historical perspective tends to create mainstreams and sidestreams and puddles, categories that really don't represent anything about music, but just about journalism or politics. I think Harry Partch and everybody else who decided that music could keep on changing harmonically by using ratios of prime numbers larger than five, I think that all those people got disenfranchised, you know, divided up and either thrown into some convenient categories, or just plain buried.

B: How do you think that happens?

A: I think in that case it was one of those cultural accidents, that it was because we won World War Two. We thought that that meant that we won Beethoven, that he was on our side.

B: Beethoven as Helen of Troy.

A: But actually we won twelve tone music. Schoenberg was persecuted by the Nazis, so we felt he must have been right about music, that making the twelve tones equal had something to do with the triumph of democracy, emancipation. Also, af-

ter the war all the American students went to Europe and discovered Webern, whose music was interesting for a lot of other reasons, and some people in power just decided that they would support people who decided to make their music change that way, and not support people who made their music change modally, or harmonically, or any of the other ways that people change their music.

C: Let's talk about cooking.

A: Let's change the subject, or I'll get vehement.

B: That's interesting, though. Oh, I know, I wanted to ask you about something you said earlier, about the equation for converting information into energy.

A: Ten to the twenty-third bits per kilocalorie.

B: Yeah, the basic idea would seem intuitive, but how did anyone come up with a number for it?

A: That is an interesting question, and here's the answer. You're familiar with the idea of Maxwell's demon, aren't you? The little guy who operates a partition between two chambers, and makes one chamber hot and the other cold by letting slow-moving molecules go only one way and fast ones the other way . . .

B: Yeah, I remember that one, that he paradoxically "creates" energy by making a temperature difference. But I could never really see how that was paradoxical, I mean, the demon has to be doing some kind of work.

A: Exactly, but the work he's doing is making decisions. The energy's already there, just entropically. His work is purely informational, he makes a yes or no decision, selecting out the molecules. If you consider information as a set of binary decisions, it becomes obvious that it takes a certain number of decisions to create, let's say, one degree of temperature difference between two volumes. That's the amazing part, that it's a definite number. Admittedly, a very large number, but even if it's a very large number, you're ahead, because you're now able to talk about a lot of things quantitatively that you couldn't before without making a new arbitrary unit.

B: Like psychokinesis. I see what you mean. Does that explain psychokinesis? That all the molecules in the object are moving randomly, and that by making enough decisions, or by being decisive enough, someone can make the object move by getting all the molecules to go one way?

A: Possibly. It certainly would make it easier to quantify observations.

B: Is that a new idea? I mean, why didn't that occur . . . why . . . I guess it's such a huge number, the "to the twenty-third." I never knew about that. That's really amazing. And yet the whole idea would seem so apparent from thermodynamics, nineteenth-century thought.

C: Heredity versus environment.

A: I think things have to become intuitively apparent first, then it's possible to talk about them, and then to think about them. The idea, or image, we decided, has to come first.

B: Talk about them, yes. That's right, I think. It's amazing that most other lan-

guages have a verb that means "to be silent" except English. I was thinking about that after you said that "cook" can be a verb but "music" can only be a noun.

C: Logicians don't take the fifth, they take the seventh.

A: Yeah, I don't know, really. That just shows that language comes from custom. It's probably not one of those things worth pursuing really. There's not much of an audience for that sort of indulgence.

B: I hope "D" gets back soon, I can't think of what to say.

A: "Improvise."

B: "The year 1588 was fraught with storms . . . " Nah, that's a quote.

A: I'll make it easy, and tell a story: the phrase "to drink a toast" comes from the old English custom of—whenever they drank to anyone's health—putting a piece of toast at the bottom of the ale mug and passing it around, so that whoever drank last got the piece of toast, like a kind of treat.

B: Are you just making this up?

A: Now listen: at one time Anne Boleyn was the most beautiful woman in England. One day, while she was bathing, she was surrounded by a group of suitors, who decided to drink to her health, each one in turn filling his cup with the bath water and drinking it, to pay homage to her. All except one. When they asked him why he didn't follow, he said "I'm waiting for the toast."

B: Ahhh, ha ha ha!

A: How'd it go, "D"?

D: Oh, fine, just fine.

A: Are we running out of time?

D: No, it's okay. I pushed a few things forward. Say, it's getting a little cold, I'll just get my . . . .

A: Wait, I'll shut the windows. Yeah, the weather's changing. That's funny because we were just saying, while you were on the phone, how it's such a climatically stable era we live in that we depend on other people to change things, but I guess that really isn't so. There, is that better?

D: While we're on the subject of weather, let me tell you about David Behrman's *Cloud Music.*

B: Sure.

D: It's called *Canadian/American Sky* and it's a collaborative piece with Bob Watts and Bob Diamond.

B: Who're they?

D: Bob Watts is a sculptor, and Bob Diamond a video engineer. The piece uses a video camera pointed a the sky for its input. The image is displayed on a TV screen along with six electronically relocatable crosshairs. The brightness fluctuations at those six points in the video field produce voltage fluctuations that are fed to a synthesizer as control signals. Bob Watts and Bob Diamond worked on the video circuits, and Behrman designed and built the audio synthesizer.

A: So as the clouds pass overhead, the sounds change. That's a beautiful idea. Does it sound anything like the other pieces?

D: Yes! it generates harmonic sequences much like the "homemade synthesizer" but the electronics are different. The pitches are all just-intoned intervals that are derived from one master frequency by frequency multiplication and division, using phase-locked loops. It's a good method for this kind of piece because it makes pitches that are always in tune relative to each other, so the piece can be installed in museums or wherever and not need constant retuning. It's an installation piece.

B: More phase-locked loops.

D: Okay, now here comes the part where I tell you how to trick a phase-locked loop into multiplying a frequency. You remember that the PLL has two inputs and one output and that the output is connected to the input, locked, in such a way as to compare its own frequency with the other input frequency. Well, if you insert a frequency-dividing chain, made of digital flip-flops or whatever—those are easy—between the PLL's output and its input, it will keep trying to adjust its output to get the same frequency at its loop input as at the other, external input. It's actual output must then be a multiple by whatever factor the dividing chain is of the incoming frequency. So, by using this division/multiplication technique, Behrman was able to make all the ratios required for just-intoned harmonies. Harmonies in just-intonation have a very beautiful, unique sound. I think Pythagoras would have loved this music. Another beautiful feature of using the PLL is that the low-pass filter network, which averages the phase difference pulses . . .

A: I remember.

D: . . . causes the pitch to glide to new tunings, rather than just jump. When the frequency changes are large, in the case of big leaps the melody swoops up or down to the new pitch.

A: I think we heard some of that. Kind of like Indian music.

B: Was Behrman influenced by Indian music?

D: Probably not directly, I mean I don't think he ever studied with an Indian master, but there's definitely that sort of sensitivity to listening to sound in his music. The kind of constant "attending" to sounds as they're changing, rather than just arriving at fixed values, or notes.

B: I know exactly what you mean. The idea of notes, and "note"-ation, that musicians are just going from one fixed value to the next fixed value, and that all the timbre changes and glides are incidental.

A: I really don't think it's been established that listening, as a process, is necessarily continuous or discontinuous. For speech recognition, no amplitude or "timbre" information is needed, only frequency information, zero-crossings.

C: 10-4.

A: It's possible that since the advent of computers that discontinuous changes are becoming easier for people to listen to, or look at.

B: What's Behrman using the computer for in his music?

D: The piece he's doing now, called *Music for Instruments, Microcomputer, and Home-made Electronics* uses a Kim-1 microcomputer to examine the actions of the instrumentalists and accordingly change the harmonic accompaniment played by the homemade electronics.

A: An extension of the pitch-sensitive music.

D: Well, yes, but extended very far in two directions. First the computer can actually recognize melodies. It's capable of correlating information from the pitch-sensitive triggers over a period of time and matching pitch sequences to certain actions it performs.

A: So that different melodies in the same mode can evoke different kinds of accompanying harmonies.

D: Yes, and it's also extended in the other direction, that of modifying its own responses. You remember that in the *Music with Melody-driven Electronics* Behrman had a hard-wired logic board that allowed new tunings to be called up if more than one trigger were on simultaneously?

A: Yes, to avoid the one-to-one correspondences.

D: Well, in the case of the computer version, the program actually modifies itself during the course of a performance so that it responds differently to a particular melody after it's been played a number of times.

B: Can you explain how any of this works? I'm not very familiar with programming.

A: My favorite analogy to the computer is the kitchen. The stove is the accumulator, the countertops and chopping blocks are the index registers, the shelves and refrigerator are memory locations. The cook has to be memory too. Hmm. I guess that's where that one falls apart.

D: That's an interesting one, "A." Maybe rather than getting too far into analogies, though, and describing computer architecture, I can explain how the programs do those things, the melody recognition and self-modifying accompaniment, in a sort of general, flow-chart way. Remember that when the player sounds the appropriate pitch for the pitch-sensitive trigger, the circuit turns on a timer for some specific period of time, usually a few seconds. In the pre-computer versions of this circuit, what happened was that the timer went on, it turned on a voltage-controlled amplifier, causing a specific chord to be played for the duration. In the current version the connection is broken after the timer; the timer outputs from the several pitch-sensitive triggers go instead to the computer. Whenever one of the triggers goes on, it pulls the interrupt line of the computer low, so that the computer stops whatever it was doing, stores away its essential data for future recall and commences to poll the interrupt inputs to determine which pitch was played. This all happens very fast, on the order of a millisecond. After it's determined which trigger went on, the program looks to see which of the timers were already on, so it gets a feeling for

the sequence of pitches right there. All of this information is stored in several registers so that the computer can, when it returns to the main program, further evaluate the pitch sequences that have occurred on a longer time scale, and also use the information to make adjustments in the part of the program that controls the external circuitry, the oscillators and VCA's.

A: Is Behrman using the same oscillators as in the previous pieces?

D: He's still using the bank of thirty-two oscillators, which have been modified for computer control, and he's added a new PLL synthesizer like the one he designed for the cloud music. The old oscillators have four possible tunings, and are controlled directly by the computer by making a data word to switch in a new capacitor-resistor combination into the circuit. They provide a drone accompaniment to the PLL synthesizer, which is controlled by the melodic events via the computer, like I just described. The accompaniments aren't just simple sustained chords; they're whole melodic phrases—well, you heard the piece.

A: It sounded to me like there was a voltage-controlled filter somewhere in there too.

D: There is. It's playing a melody over the main melody by filtering through the overtones. It's also interrupt-driven.

B: You mean it happens every time the player does some specific thing.

A: It occurred to me that, it occurred to me, when you said that the piece is sort of cumulative within a performance, that, doesn't that imply some sort of progress, a one-way direction built into the piece, because of the program? I'm not sure I stated that . . .

D: Well, the program changes itself, so that is doesn't give one response to the same stimulus too many times. Let me explain. The program, as Behrman wrote it, doesn't make any presuppositions about the sequence of melodies or how many times it's going to hear a phrase repeated. Behrman's intention here is to make a program that will respond in ways he feels are musically appropriate to the actions of the player. I think it's that consideration which led him to make a self-modifying system, rather than the idea of setting up an elaborate system of mutual contingencies between the player and the computer.

C: Obligations.

B: I understand that—that it's sort of like the computer and the player are on equal footing. I sensed that. I noticed that in the program notes he listed the player, the computer, and himself all as performers.

A: The new team's taking over.

D: Well, guys, that should about cover it, and unless you've got any other questions, I should get going.

B: Just a general one. How many possible bits does the microcomputer have?

D: It's an eight-bit machine and it has a sixteen-bit address bus. Is that what you mean?

B: Is that how much information it can deal with?

D: Well, that would be about 65,000 eight-bit words. Why?

B: I was just curious.

D: Behrman is using 5k of read-write memory for his programs.

A: Well, thanks a lot, "D." Hope to see you again soon.

D: Well, it's nice to meet you all, and er, your friend . . .

B: "C."

D: Bye.

B: Bye.

A: Bye.

C: It's time to eat.

B: The reason I asked "D" about the information capacity . . .

A: I figured that. I suppose it happens. I was thinking, though, that some kinds of information must convert more readily into energy.

B: Something like plutonium.

C: Like frying parsley, or looking at a blackbird.

A: At any rate it's clear that knowledge alone isn't worth anything any more but that information is very valuable. It's always funny to see those armored vans that say "don't bother to rob this van, contains computer data only." I'll bet in the stone age they said "don't rob, contains money only, no food or furs."

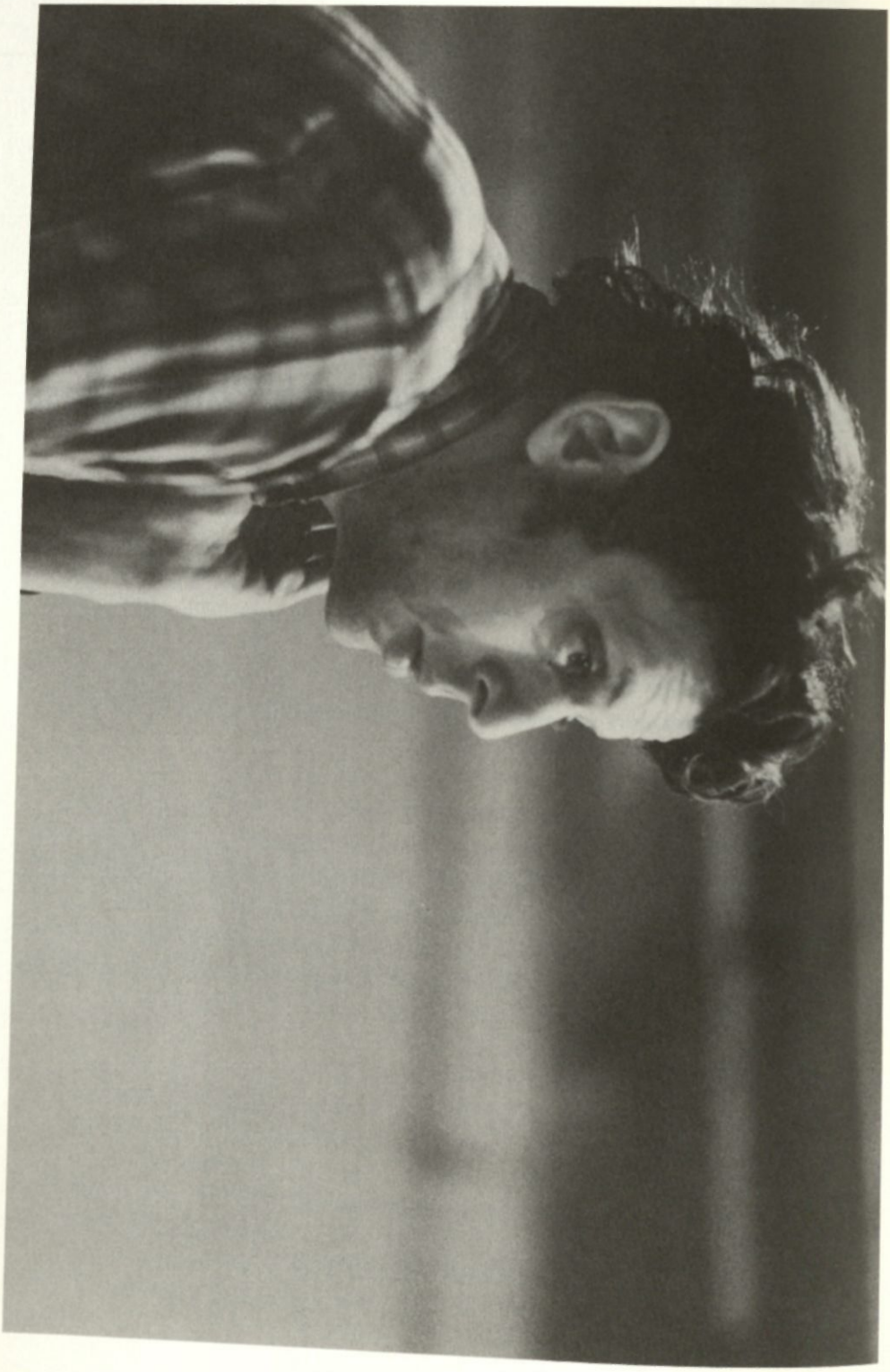
B: I wonder how much it would take, though, to see the effects. You know, they always say that we use only one tenth of our brain, but I don't believe that. I think that we use all of it all the time. Do you know what I mean?

A: Huh?

B: It seems that what people do unconsciously, maybe everything we do without consciously thinking, is actually balancing out various forces, making situations more energy-efficient, and that without ever really making mistakes, sometimes the horizon of awareness changes, and we feel silly, or amazed.

A: I used to think that it was terrible to be forever in a state of amazement—I mean amazement at what I could do—and I thought that it might have something to do with energy, but then I just stopped thinking it.

Landscape with Philip Glass



"I'm making the rules"

We were talking about the fact that kids scare me to death.

What did you do when your son was little? Did you do the diapers and all that stuff?

As much as I could. But it was so hard.

It's hard for everybody.

They're so different. It seems like they almost have to be thirty years old or twenty-five years old before I feel like they're the same race as I am. They always feel like they're from a different planet or something like that.

I don't have any trouble spending time with them at all. I don't know much about that whole issue that's grown up around . . .

. . . child-raising and everything. I don't either. Do you mind if I ask you how paternalistic you feel about your players. Do you feel as though you're taking care of them?

Oh, financially, of course, it's quite a fact.

Your activities usually support them.

At this point they do. When we're not playing, and when we're not being paid for concerts, we're on unemployment. And the way things are now, unemployment seems to have become a permanent fact of . . .

. . . everybody's life.

It's by far the best way of funding.

But you have to work a minimum number of weeks.

We do. The minimum is twenty and we're now into our second year of unemployment.

Are your activities as an ensemble thorough enough so that with the unemployment they can support the whole group?

Yes, absolutely. It takes twenty weeks, and that means the other thirty-two are paid for, so that during the first year you have to get another twenty. See, you have to start off with twenty, then you get unemployment for the next year and then during that first year of unemployment, if you work another twenty weeks you're covered for the next year. But it's not possible for some people in the ensemble. Kurt Munkacsi and Michael Riesman, for example, are involved in the studios on some level. So that for technical reasons they don't qualify because they have other sources of income.

But you get unemployment.

I do, and at least five other people in the ensemble do. It means that when we're

not getting paid a check for a rehearsal or concert, we get the unemployment. We receive the maximum, which is ninety-five dollars a week; you get thirty-two weeks of that, which comes to three thousand dollars.

I know a lot of musicians and actors who do that.

It means that if you pay the maximum, which is one hundred and ninety dollars for twenty weeks, that's three thousand eight hundred dollars and you get the rest, another three thousand dollars which then gives you a guaranteed minimum of six thousand eight hundred dollars. Really, that's not much money these days.

It's not any money at all, really.

It's enough to pay the rent, and everyone else in the group has other work.

Do you do anything else?

No.

You're the only one that doesn't have any other work?

Well, I've had to work in the past but I'm not working right now. But it's only recently that I've been able to get money for writing music or for being who I am.

It's sort of obvious, but do you think that the activities of the Philip Glass Ensemble, in supporting these people, are changing your ideas about what you can do or what you can't do?

No, I don't really think so. You see, the group began eight years ago. We only began actually making any kind of money in the last three years. So the first five years that we played together was because there wasn't any music scene except what we did. We were younger then. There were many reasons why money wasn't a big factor.

It couldn't have been a factor in the beginning.

At this point the ensemble is an economic unit in the same way that the Duke Ellington Band or the Count Basie Band was an economic unit. There's nothing wrong with that at all. It's just a fact. I think the artistic choices are not unaffected by it, but on the other hand, I don't think that's a bad thing; it's just another kind of reality. For example, I've just been working with Bob Wilson on an opera, *Einstein on the Beach*, and I built the group in. All of the music was built around the ensemble, and I added the voices. After the opera is finished, I'll have material for at least two programs of music.

Plus your recording.

In addition there'll be other things involved in it, too. When I got into this, it made it much easier to work when I knew what I was working for. My music is very demanding; not everyone can play it. I've sat down with people that are new music people and some of them have had a lot of trouble. This opera is a five-hour piece and some of these people such as Dickie Landry and Michael Riesman and Jon Gibson, have gotten so used to the discipline of the music and the energy it requires that there's no problem for them.

When I first started hearing your music, David Behrman was playing with you. That's a long time back.

That was nice.

When did you first get into the idea of "long" pieces?

Long pieces? You mean how did that happen?

For instance, you did Music in Twelve Parts *for, what, four and a half hours?*

That's four hours and the opera is almost five. I think there are several reasons for that. One is that, partly, the music requires that time frame to speak, don't you think?

I think it does.

It's about the whole idea of using repetitive structures that puts you into that thing. When I began working this way in the mid-sixties, I was working alone. I could see right away that I was in a much bigger time frame than I had been working in up until then. It took me fifteen or twenty minutes just to get something that I could listen to long enough for it to work. Then there's something else, and this is getting into the real historical thing. If you look at it from another point of view, it's that when I was about fifteen I got very interested in Webern. I loved especially the string quartet music. In terms of duration, I eclipsed all of his music years ago. I've written more music in terms of length-of-time. But I think, personally, there is a pendulum effect. I'm always doing the opposite of whatever I did before. It just seems to me to be true; it's even true of the music I'm doing now.

The difference between the two pieces is obvious. But that's why I was asking you about the economic thing. It seems to me that what happens so often in groups of professional musicians that get into the pendulum effect is that those groups will go to a stylistic extreme, for instance, in jazz. Do you think of the pendulum effect as affecting you or the kind of music that you compose?

I think it affects me in a lot of different ways. Partially that has to do with another thing. When I was a student I never imagined that I would be making a living as a performing musician. As a music student in those days, you wrote your music, and you gave it to someone else to play, and later got a teaching job. It was a very "ivory tower" kind of thing, and I understand that's actually the way most people still do it. Most people still live that way. As a student at Juilliard I was discouraged from playing my music in a very insidious way because I was surrounded by such good players. See, when I went to Juilliard I could still play the flute somewhat, but I could hardly play the piano at all. I actually began playing the piano fairly late, when I was nineteen or twenty. I could still play the flute fairly well, but there were so many good flutists around, it was pointless. In other words, the idea was that there were the composers and you wrote the music and gave it to the performers. Of course looking back on it now, I think that was a real defect of that system. And it never occurred to me at the time that it was, because I just couldn't play with those guys. So now I make my living and just think of myself as a performing musician. I'm not as good a piano player as someone like Michael Riesman; he can do anything. But it's not always required. One of the best piano players we had was Robert Prado, who was actually a trumpet player, but like me picked up piano as a second

instrument. And the thing about Robert was that his sense of time was just flawless. I wouldn't even have to count down a piece. We always played together and it seemed like from the first two eighth notes he knew the tempo. I tried to fool him and I couldn't.

Do most of the players come out of a jazz background?

Robert Prado was from Louisiana; he died in an accident.

I read that.

And then Dickie Landry is from Louisiana as well.

How did you get connected with Louisiana?

I was living in New York and a good friend of mine was Richard Serra. I've always known a lot of artists: I think I've gravitated towards artists because they were always more open than musicians and I liked looking at what they did. They were more interested, really, in what I was doing.

In life.

It was better. That was one of the reasons why I was in the art world; I've always been in the art world. When I was fifteen or sixteen my first friends were artists and I used to go to museums with them. They taught me a lot about how to look at things. Not that I know that much about it, but you're bound to pick up something after a while. So Richard Serra and I were very close friends. We knew each other in Europe, where I had been studying. When we came back to New York we were both working. He wasn't able to make a living in those days as an artist, and neither was I. I think my first job in New York was as a furniture mover; Richard had just finished doing that. He was starting to sell his pieces and gave me his truck. So I had his truck and began moving furniture. I also worked for him as his assistant for a number of years.

Do you mean building things?

I helped fabricate the pieces. One of his friends was a man named Keith Sonnier, who in 1967 or 1968 was also getting to New York for the first time. They were establishing themselves as the young movement. That came after the minimal movement which came after the pop movement and so on. These people since then have become very well established.

You're associated with them musically too.

Yes, I am, but that's really happenstance. We can talk about that. But this whole minimal thing, I think, was because my friends happened to be Richard, and Keith, and Don Judd. Anyway, getting back to the way I met Dickie. Keith was from Louisiana and Dickie came up from Louisiana and I met Dickie through him. Then Richard Peck came up to stay with Dickie and he began playing with me. Robert Prado was a friend and he came over and for a while, Dickie had a place down in Chinatown at Chatham Square, which is the name of our record company. It was kind of like a halfway house. People came up from Louisiana and they would stay at this place and we would rehearse there.

You would pick up guys for the band?

Yes, can you believe it? Every one of them. Rusty Gilder, Robert Prado, Richard Peck, and John Smith, who played with White Trash. At one point we had five Cajuns in the band. They were almost all Cajuns except for Jon Gibson and me.

By Cajuns, do you mean that their backgrounds were in popular music?

No, it was more complicated than that. Dickie was a trained musician in the sense that he had a Masters Degree and was a composer and did film music. He doesn't like to write music down; he's not that kind of musician. There was a time in his life when he did do that, but he doesn't any more. All of them were from that background. There's just a lot of music down in Louisiana.

You've played your own music down there?

Yes, I have. John Smith played with me once. He was staying with Dickie and we were rehearsing and he asked if he could sit in. I said, "If you can read it you can do it." And it happened that John couldn't read, but he said that he had a very good ear. And by God, he learned the music by ear. I told him that it would be easier to learn to read than to memorize this music. And he said, "Not for me." He learned to play *Music with Changing Parts* which has some improvised sections in it. We did one concert at La Mama that Ellen Stewart sponsored.

I was there. That was the first time I heard your music. That's why I'm here. That's why you're here.

Of the five horn players, the only people who weren't from Louisiana that afternoon were Jon Gibson and me.

That was a very strange, heavy band.

But I liked it. It brought another flavor into the music which I've been conscious of.

Well, the time in your music is very particular; it's hard to find what the roots of it are. It doesn't sound European.

I don't think it's that exotic sounding either. I don't think it sounds Indian at all.

Oh, not Indian at all. It doesn't sound like popular music either.

I wonder what that is?

It's a kind of time feeling that's different.

I don't know what it is.

It's changed since I heard it.

Has it changed very much?

It's gotten faster. It used to appear to me to be very much slower. Each piece seems to be getting faster.

I call it the rate of change.

The feeling of how fast it's going.

But in the new piece, *Einstein on the Beach*, it's slowed down again. I think it's gotten as fast as it's going to get. I feel it's starting to slow down. Again, it's the pendulum effect.

Really?

Yes, it's starting to slow down. And now, I started a new piece which doesn't. I started out with a very extended time sense, and gradually the rate of change became quicker and quicker until in the second piece from *Einstein*, the rate of change became really quite fast. And besides that, there are sections in it. Now I'm writing a piece which is more like the pieces I composed in 1968.

Do you mean with less structural change?

Yes. And it occupies a lot of time. You see, I can't play that piece in half an hour. One thing that's happened is that as the rate of change increases, the overall rate of the pieces can increase as well. But I'll tell you, I just go along with those things. My feelings about those things are extremely subjective.

I was thinking yesterday that, when a group of people has been together as long as yours, you must get into things that are special skills.

Oh, sure.

I mean, the music from Einstein *has those strange breaks in it that require really special skills. They're very surprising.*

Which ones are you thinking of?

Where the sections change. Everybody jumps into a new sort of feeling.

Well you know, when I'm writing the pieces now, I write the parts for the players and not for the instruments. Sometimes I'll know what instrument they're going to play. For instance, Dickie can play alto or tenor or flute. It's orchestrated for the person. In fact the instrument can actually change.

Do you make those decisions before you reveal the piece?

I do to an extent. In the rehearsal period I'll think that Dickie will be playing a flute, but when you come right down to it, it may change; it may become a soprano. I no longer write scores when I write the pieces out.

There are just parts?

Just parts. There's no need to write the score. No one is going to read it anyway, and I'll tell you, it takes an awfully long time to write those scores. I started to write the score for Part One of *Music in Twelve Parts*, and it took me about four days. I figured at that rate it was going to take a lot of time, and I wasn't going to do it. But I wanted to copyright the piece because I wanted to make a record. So I took all my parts and called that the lead sheet. I sent that down and said this is the lead sheet and everyone plays the changes from that sheet, just like a jazz score. And they let it go through. I got a copyright on the lead sheet, which as far as I'm concerned is the copyright. So that meant that the only reason for doing the score was for that reason. The other reason would be for foundation purposes, but I just can't do it. I'm not going to copy out a score, so the way I do pieces now is by writing out my part; and actually I sometimes don't even do that. I'll make the notes to the piece, and for that I'll first write out Dickie's part, then Michael's, then Jon's, and on and on. It's really for them. I know how they sound, and I know what they're good at.

I try to write for the strength of the group.

When you're orchestrating, apart from the fact that it's for a fixed ensemble, do you think of it as being made up of a lot of lines? I mean, do you think of it as being an orchestrated line or a color change, or do you think of it as being a counterpoint?

I don't think of it as a counterpoint. I think of it really as plateaus —as layers, like a geological cut.

But they're only layers in the sense that they're different colors. You don't really get into the bass versus soprano.

I do now. Didn't you hear that in the last piece? At the end of that piece you've got the bass line, and you've got Joan La Barbara singing that long line.

I don't know what to call it when you get into that.

The cadence.

The cadence, a long cadence.

One of the reasons I put that in was because *Music in Twelve Parts* was such a long piece to do. I spent too much time on it. I think I spent three years on the piece. But by the time I got halfway through the piece—more than halfway through the piece—I decided to change the rules. I noticed that I had been operating under a lot of rules that had become automatic, and that there were things that weren't possible to do in my music because I had made them forbidden.

To yourself you mean.

To myself. And a lot of *Music in Twelve Parts* gradually breaks down those rules. Beginning in Part Nine, and then into Part Ten, Eleven, and Twelve, I'm doing all the things that I couldn't do in Part One. Part Twelve is chromatic, it's cadential, and then in *Einstein* I took advantage of the same ideas. For instance, the idea of using real root movement in my music was really forbidden for many many years. A piece would start with six or seven pitches and it would never change. There was no root movement at all. Finally I just said, well, how is it possible that there's something I can't do. That seemed rather strange.

Academic.

I can't tie myself down like that. So I said, what is it that I can't do? I can't do cadences. And so I made a piece with cadences. I might be making it sound more intellectual that it really was, because another thing that happened was that certain things that had been left out for so many years became exciting for me to hear. Like there was no root movement, and I hadn't worked with root movement in six or seven years. After a while I just wanted to hear it. I was starting to hear it, then I said, well, why can't I do it? Well, there's this rule. Rule!!? Who's making the rules? I'm making the rules. And that was the end of the rule. But it wasn't so much like I examined the music and said this is missing and this is missing; therefore I'll put it in. Like with the chromaticism that came into the music after all that diatonic white-note music. After a while I just wanted to hear a chromatic flavor in the music. I started off with the minor scale, which interests me very much. It has that ambigu-

ous seventh degree, and that seemed like a key to chromaticism for me. I felt as though I had to find a place in my music where it would make some sense.

Yesterday I heard you working at it before we actually started recording, and I noticed there are a lot of parts in it that are modal. You don't feel the root movement until everybody begins playing.

That's right.

It has a lot of the old qualities.

Are you taking about the fact that you really can't hear the piece unless everyone is playing?

Yes.

It's funny, isn't it. And the fact that at this point there are only parts. In a way the piece only really exists when we sit down and play it.

I want to ask you two more questions before I forget. One is, that since your music is so accessible technically, and is notated, and played on instruments that are available, why is it that you don't want other people to play it?

Well, there are several reasons for that.

Could you say what they are?

For one thing, we spend a lot of time rehearsing the music, and I don't think anyone else is going to spend that time.

So the music would be badly played.

First of all, badly played. But that's not as important, because I think eventually people could learn to do it, and there might even be some money involved in it. I think that the real reason I feel this way is because at this point I've made a commitment to making a living as a musician. I don't know when that happened. But it came on a par with my experience of having to make a living in New York. And that came as a result of my decision not to be a music teacher, which left me with either street jobs or music, and the more I did street jobs . . .

. . . the more you wanted to do music.

And I became very clever at maximizing my possibilities of making money at my music because it was either that or putting in someone's sink or moving someone's furniture to survive. I just didn't want to do it. I did it for years and I don't want to do it.

You mean not playing your music exclusively yourself.

It has to do with that because my feeling is that if anyone could play my music then the likelihood of my being hired would be diminished. For example, there were some people that got a hold of a score of mine in England and played it there and I, for the reasons I just explained, said, look, just don't do that. And they said, well, we thought that you would want us to. Well, I was trying to arrange for concerts in London. Now, one of the things I can do is say that I've never played my music in London; no one else has played it, so if they want to hear my music, they've got to have me come and do it. There was someone in Chicago who was asking me to come

and play and I said, well, if we can negotiate the money. And I said, this is the fee, and they said, we don't have it, and I said, well try to get it next year. I'd rather wait a year. They have no recourse. They can't say, well where can we buy the music, which is normally what would happen. So I have an economic lock on it.

Do you expect that eventually it might change enough so that people could play Music in Twelve Parts?

No, I don't want them to. The first reason is the economic one. As long as I'm the only person who has the scores, no one else can play it. Anyone who wants to hear it has to hire me. I still make my living from playing. Publishers have told me that I can make very good fees from performing rights, but I just don't want to suffer through those bad performances. Where are they going to get a sound system like the one I've got? My sound system took Kurt about five years to develop. I suppose you could rent a sound system, but who's going to do it?

If you allow people to play your music, they'll play it on anything.

Anything. And then you've got to face that, and I'm just not ready for it. The other thing is very personal. I find it very odd to hear someone else play my music. Does that happen to you?

I feel it; it's terrible.

It's very peculiar. I just have to leave. It hasn't happened very much, but I just don't think that I would like it.

The other thing I want to ask you is about the music from Einstein on the Beach *that we recorded yesterday. Do you think of a format that you have to fulfill before you start? Or is there some internal process for each of these pieces that makes a piece last twenty minutes or thirty minutes?*

I think it's the second idea. Let's go back a little. When I first started writing music I began rather technically. I learned how to write music from my teachers and my first music was modeled after them. I studied the same things that we all study and all the different things that you do when you're a student. So I knew a lot about music in terms of what models there were, and for a long time my music was built on those models. I'm talking about the music I wrote before I was thirty. I began writing music when I was sixteen, but I didn't really get serious until I was nineteen or twenty. And so there's about ten years of music which is strictly modeled after the people I studied with. There's not one note of it that's worth listening to.

I understand.

I have four or five boxes of it. It happened to be a lot in my case; some of it is floating around. About twenty pieces got published at different points. Most of it's gone; I left it there. I really didn't write one note of original music until I was thirty, and I'm thirty-nine now.

Neither did I. You know it's amazing; it's so common among artists.

These young people who are writing now are so much further along than I was at their age. You know, when I was twenty-five or twenty-six, I was living in some-

one else's world. I was writing music like Milhaud when I studied with Milhaud, like Vincent Persichetti when I studied with Vincent Persichetti. All craftsmen of a kind. When I got involved with my own music, those models no longer existed, and that's when things got interesting. I don't know why it happened; it just happened one day . . . literally overnight while I was living in Paris. I didn't know anyone else. It wasn't like I was in California when Terry Riley and La Monte Young and Steve Reich were all out there and had each other. They had a scene, you know. I was in Paris and the only thing going on was the *Domaine Musicale* that Boulez ran. There was nothing going through except serial music, and occasionally Earle Brown. Earle Brown was acceptable for some reason. They liked him.

Well, he was in Europe then.

Yes, but there was a different feeling to his music. It was odd for me to hear Earle Brown's music in the context of those concerts. There was something so—I hate to use this word—fascist about them.

Organized.

Organized and doctrinaire. I never thought that he would get into that. But anyway, for some reason they liked him and his music was done. I heard one piece of Morton Feldman's the whole time I was there. Aside from that I was living in a wasteland as far as I could see, dominated by these maniacs, these creeps, who were trying to make everyone write this crazy creepy music. And so I reacted to it violently and I began doing this other music. In a sense my music is a reaction to that.

The sustained quality was exactly against that.

Yes, and again, I didn't intellectually say instead of doing this I'll do that, but it came out that way. Because of what I was hearing around me I needed something else. I needed to hear something extremely simple that was organized along lines that were perceivable. Everything in my early music, and even in my music at this moment, can be heard that way, and that's part of the reason I've had so much fun with the art world. I mean, my music is up front; it's that kind of music. At any rate, the more I got involved with music the less I depended on composers' techniques for writing it. Some people ask me how I write the music. And I can say truly that at this point I know more than I ever did before and it's been very good for me. I'll tell you, I never think about music until I'm writing it. I don't have any ideas.

But what about Einstein?

How did I do that?

I think we should say what it is.

It's a five-hour opera that Bob Wilson and I are doing together.

Did you decide in advance that you had to occupy five hours?

Yes, because the only thing we had in common to work with in the beginning was the time medium.

You both occupy large portions of time.

We began by asking how long the piece would be and how to divide it up. So we

divided it up in four acts—an hour for each act, and ten or fifteen minutes for each entr'acte. Then Bob made some drawings which I took and used as a point of departure. We then set out themes, such as a train theme, a trial theme, a jail theme, a spaceship theme. Actually there were three themes; I'm not getting it quite right. But we addressed ourselves to the themes as problems. I was living up in Canada at the time. I have this place up there where I write a lot of music in the summertime; this little A-frame house in the woods. It's really very ideal. It's the kind of thing that every composer, every human being, should have. And as I said, I almost never have any ideas about music that I later have to translate into something. It never happens to me. Never. When I was at Juilliard I learned to write away from the piano. You know, how you're supposed to. Now, I never write away from the piano.

So you just sit down and start?

I just sit down and start playing and it comes out. I took Bob's book of drawings and put the drawings out, looked at them, and played the music. I mean, it isn't just a question of playing it and then writing it down. It can take a little bit of time to work out or refine ideas that seem to be appropriate. In this case it almost became semiconscious. I've got all of this technique now, and not only the technique I learned as a student, but all of the technique of the last eight or nine years of writing this kind of music. I know how to do a lot of things; technique is knowing how to do something.

How to start.

How to start, how to keep going, and how to finish. I just know a lot of stuff now and I've always written a lot of music. I've always done a lot, so I've got that technique and I don't have to think about it. It's not that it's unconscious; it's that I've got it and that it's no longer a problem. And I'll tell you, I know when I'm ready to write a piece.

Do you feel it physically? How do you know when you're ready to write a piece?

I just know, Bob. It's like something pushing out. I told Bob Wilson, when we were finishing this rehearsal period, I said, gee, I really want to write a piece. And he said, what is it? And I said, I don't know yet but I knew I was ready to write a piece and I hadn't felt that way for a while.

It didn't have anything to do with the opera?

It had nothing to do with that. Almost the day after the rehearsal was over I sat down and began writing a new piece. And it's helpful, because if I don't have that feeling I won't bother. I don't say, well, I've got to write a piece. If I don't feel ready to do one, I just don't want to do it. I just don't feel like working any more unless I know that there's something to do. That sounds very subjective and romantic doesn't it? But that's actually the way it is. In fact I have the feeling now that I'm about to write a piece. You know how people can sometimes tell you when the phone's going to ring, or they know when they're going to get a letter from somebody? It's very intuitive. I just feel intuitively that I'm ready to do a piece. There

will be problems; maybe I'll have to extend it, or after the initial beginning of the piece I'll have to work through and then start to use all my knowledge of instruments and structures and rhythmic structures.

And that could take weeks or months. Do you ever have to leave things undone?

No. *Music in Twelve Parts* took me three years to write, but that was partly because I was working all of the time at street jobs.

Street jobs.

Street jobs. But now I find I spend less and less time writing. It's very quick now. I tried to figure out how much music time I actually spent writing the scenes for *Einstein*. The mother of that piece was *Another Look at Harmony*.

Which I've heard.

You've heard that. I call it the mother of this piece because after doing it I realized that it would be Bob Wilson's piece. I knew it was going to be the opera. I received some money from the National Endowment to write a piece and I wrote a concert piece, while simultaneously using material that would later become the opera. It wasn't a transition piece; it was a piece halfway to the other piece. And it was also a way of getting that material out and listening to it, because all of that material is very new. I called it *Another Look at Harmony*, which is another one of my jokes. I have a lot of jokes in my titles; they aren't really very funny, but . . .

But why Another Look at Harmony*? I mean, it's a weird title.*

It is, isn't it? You know, the guys in the band hated the title at first, but everyone's used to it now. It's funny that after a while titles seem to be all right. At the end of *Music in Twelve Parts*—we were talking about these rules—one of the things that never happened was the presence of any real harmony. There were things happening on different harmonic plateaus, but there were no root movements, no cadences, and no modulations. Actually, that's not quite true. There were modulations in *Music with Changing Parts* and in *Music in Twelve Parts*. But they were modulations in the seams; they always occurred at the breaks.

And they get more pronounced as the piece goes on.

Finally, it looked to me like, since modulations were becoming more and more the subject of the work, that I just had to face the issue of root movement very square and incorporate it into my music, and that meant harmony. And I just said, call it *Another Look at Harmony*. You see, when I was a student, I had a teacher in Europe who was very involved in traditional materials, and I studied with her for two years. I was twenty-six when I went to study with her, and she made me start from the beginning again, and we started with harmony. So when I was twenty-six, twenty-seven, twenty-eight, something like that, I was writing first species counterpoint. Can you believe that?

I've heard of that.

That was Boulanger. And I did that for two years. That was practically all I did. When I got involved in my own music, one of the things I reacted to besides the

Boulez scene was to that, so there was no harmony or counterpoint in my music. And then eight or nine years later I said, well, it's coming back, so the title was natural for me. It was an autobiographical title; it was another look at harmony. The last time I had looked at it was nine years before, and to be writing first species counterpoint at twenty-seven or twenty-eight is fairly old. It's strange, but I think it was valuable. What were you going to ask me?

That was the question. It seems like your music has always been harmonic; it hasn't ever been about noise.

No, but when I talk about *Another Look at Harmony*, I'm talking specifically about functional harmony and root movement. I'm talking about the technology of eighteenth- and nineteenth-century music. I think it's interesting that that music is in our popular music. You know, we've never left it. I don't know what you listen to, but I listen to the radio a lot, and I hear it all the time. A lot of the music world is involved with that. They're not involved with the stuff that we're involved with. You know these kids, any kids, when they start doing music they learn changes. The guys whom I play with know how to play changes. I don't think of myself as part of that tradition of modern music that came from Schoenberg, Webern, and Berg. That's a real problem with many people, and this is 1976! 1976 and people are still worried about those problems? They're still worried about the problems that Brahms was worried about. Now, if that isn't conservative, what is?

Is there a tradition that you come out of? Is there an older person for you?

No. There are older people whom I admire, but there isn't anyone that I could model the music after. I like Cage, although I'm not close to him personally.

You admired his break.

I admired the break, and his ability to stand on his own feet. You know there is this maverick tradition in America that's very strong. It's in Ives, Ruggles, Cage, Partch, Moondog, all of these weird guys.

And you're part of that tradition, don't you think?

That's my tradition, and people in that tradition don't have models. They only have models in terms of . . .

They're social models.

The way they are in the world. One of the important things about Cage was that he saw that it was possible to commit oneself to making a living as a composer. Cage was the only composer I knew who had done that. I didn't realize until more recently that it wasn't until he was fifty that he was able to do that. He had a lot of hard years. In that sense it has been easier for me. Perhaps I had a few hard years, but I think it's getting easier for each generation.

It involves breaking that tradition.

We're breaking that tradition down—the academic tradition, and the strong hold they had on modern music. That tradition is no longer believable, and it's not important. That doesn't mean it won't continue . . .

It seems that the people who listen to your music don't think so much that when you're older you're smarter.

The other thing is that we're trying to create an alternate tradition, and we have the audience on our side. That's really important.

You definitely have a very, very solid audience.

Well, that makes it somehow possible to exist in the world. We don't need anyone's permission, because we have something else. I think that I relate myself to that maverick tradition.

All the people you respect are part of it. All the people you hear about are part of it.

It's not that I don't like the work of older composers. I've always thought that Virgil Thomson was interesting.

He's sort of a maverick, don't you think?

He is in a way. And I think that Henry Cowell and Lou Harrison are interesting. But whether any of these people teach or not isn't so important. If you look at it, most of the writing that we have in America is academic. Then we have this trickle that runs along side of it, and that's were you find the gold. You don't find it in the mainstream at all. All of the people that are heads of the big music schools are part of that mainstream and that just doesn't have any appeal for me. It's okay, but it just doesn't have anything to do with me.

Do you, apart from the maverick tradition, think of your music as having any political connections? You said to me two or three times that you think of yourself as being part of the working class. I mean, that's a huge tradition.

I didn't mean it quite that way.

I don't mean about your music, but it's so practical.

I see what you mean. Political? No, I don't. For me it's a bad joke, and I have very little sympathy for the idea that music can be used for political and social purposes. I just think it's silly. That's not to say that those people who are involved with those ideas aren't totally serious, and I try to take them seriously. I've had talks with people who are my friends and to whom I can talk about this. But first of all I have a personal history of having worked a lot at all kinds of jobs from the steel mills in Baltimore to being a plumber or a furniture mover, or any kind of work in factories—so many things that I can't even remember. So my involvement with working people is a very long one, and I know who those guys are in the steel mills. I used to work with them, and the idea of going in there and playing music for them strikes me as very very silly. I mean I know those guys. When I was in the steel mills all we were talking about was how you could rip off the company. And a lot of those people were driving around in fancy cars and had ice boxes and new refrigerators. The working class in America is very middle class. And I'm not just talking about white people in Maryland; there were black people too. We don't have a European working class or an Eastern European working class or an Asian working class. We have something a bit different. And if you spend any time with those people you find out

that they think that an artist is just a way of beating the nine-to-five rap. For them that's what it is. I remember going into some of the places I used to work in. There would be something in the paper about a painting selling for, like, five hundred thousand dollars and they'd say, you know, my kid can do better than that. And I'd say, well you ought to do it. Then we'd talk about it and they would say, well what do you think of it? And I said, well if you think you can do it, get it on, you know. They really have a lot of contempt for artists and for the way we live. And they have their reasons for it, but the idea that there's going to be some rapprochement between those two worlds is very unlikely; none of us are going to change it. That's what I think popular music did. I think popular music is a plug into that. I think that it's possible in that way.

Would you let your music be popular, if it started going in that direction?

How could I do that?

I mean if you let it tour.

I'll tell you, I've toured a lot and I don't like it. I have to do it because the way we really make our money is by doing concerts. We don't make much from records, and as far as I can tell from talking to other musicians, that's how they make their money too. Our economic situation is more similar to jazz than to pop and you can find parallels in the jazz world much easier than you can in the world of pop. Jazz musicians have to work very hard and they have to do a lot of road work; pop music is a bit different. There you can do a few big splashy concerts and make enough money to keep everything going. In that case the money comes from the record companies. The difference between someone like Keith Jarrett and the Rolling Stones is something like a couple million records sold, and personally I make like both of them. I don't know what Jarrett's sales are, but say he put out a solo record and sells twenty or twenty-five thousand copies. Twenty-five thousand copies is a lot for a jazz record to sell. You don't make money in a record company unless you sell over seventy-five thousand. That's why Miles Davis is a bit unusual; he can sell a lot of records. And there are a few other people who can, but famous people like Mingus . . .

They just get by . . .

They're not making any money, and they're working a lot and they're on the road a lot. I think that's really our situation. I think that we can have large audiences, and we do have large audiences, and we can have very supportive audiences. But I think they'll be that kind of audience which is never really a big popular audience, but that it will be big enough to support your work. And I think that what you can look for is a certain amount of media exposure, and then people will know who you are and your music will be considered real. That was a large problem for the first five or six years my group was together: just getting people to think it was real.

Believable.

That's no longer a problem; everyone knows it's real now. Kurt, our engineer,

feels that there is a big popular audience, and he points to the European pop fans. The big popular bands acknowledge that they've gotten a lot from me. You see I've been to Europe a lot, and Germany was one of the first countries I went to. We're very well known in Germany, so when I give a concert in Berlin they come to my concerts. And you know, I think that's a natural process. Let's say there's the world of pop music and there's the world of concert music. I think that the concert music of today isn't the academic music because that music has no relation to the pop music. The concert music I'm doing has a real relation to the pop music, but I don't think anyone would confuse it. In other words, I think that there may be similar issues and there may be similar audiences, which is interesting. For example, the same people that go to one of my concerts might well have gone to the Who concert. Many of them do. And they'll go to the Who concert and they'll go to my concert and for them it's different. It's not a question of what they like better: one is concert music and one is pop music. And I think that there is a historical relationship between popular music and concert music during any period. If you look at it that way, then you can ask where this music fits in economically. You can say that it's related to pop music in some way, and so there will be a certain amount of spill over. But it will always be too serious for a lot of people. We get the audiences now in New York of about a thousand. I think that's an awful lot of people.

It is. It's an awful lot to feel, to be with . . .

That's one of the things that's changed for us. Our first concerts in New York were in 1966 and 1967, and eighty or ninety people would come. For years we were relating to audiences of several hundred. And then, just in the last few years it has suddenly gone way up. And it's different. I don't know what to really think of it yet. That'll be true with this opera too, because we'll be playing in opera houses and they say there'll be about twelve hundred. It's different.

A different feeling.

It's a different feeling and it takes more out of you. It's interesting. It's actually a physical thing. I don't know if it changes the music, or if it changes us. I wonder if we were different six or seven years ago. You'd have to ask someone that knew us then.

I only know it from the records. I intuitively felt that I would get that answer, but I didn't know if you actually wanted it to go toward a popular direction.

As I said, we have a real relationship to pop music. But I think that concert music and pop music are in opposition to a degree, even though they can occupy the same world at different ends of it, or occupy different positions in it.

There's a different thing that they do if you're a listener.

But there's a real relationship in terms of the musical content and that's what Kurt had noticed and why he thinks that it's possible to get a really big . . .

. . . popular audience.

I wonder about that. I'm not sure about that . . . that question is open.

Music of the Moment

by Peter Gordon

[Winter 1975]. You're at a Philip Glass concert in a downtown Manhattan loft. It is a five-thousand-square-foot space with pillars and speakers in four corners. The musicians and mixing engineer sit in a circle in the center of the room. People sit on cushions, lie on their coats or walk around the perimeter. Some dance and a few twirl. The music is very loud and noticeably undistorted. The whole room seems to resonate. The musicians are playing saxophones, Farfisa organs, and flutes, and one sings. Repeating melodic fragments create a rich harmonic texture. The flutes and voice select snippets of melody from the composite organ/sax timbre. The music is at once static and ever changing. Every few minutes the sound seems to change a bit in mood or color. The pulse is the same, the orchestration is the same, the harmony is the same. Maybe some new melodies evolved or others disappeared—a shift of the body or turn of the head and the sound changes. You are confronted with a large geographical or architectural mass. You walk around it, change your point of view. Attention drifts between the large, obvious structure and the increasingly smaller substructures. Recurring events relate to one another like rotating geometric figures. Strange things happen with your memory. Recollection of events earlier in the music is unimportant: the music has always existed, each change is part of the "isness" of the piece. You watch your thoughts go through you, leave you, go beyond your control. You're being drawn inward, where an inner energy resonates with the sound. Maybe it's only physical. You lose a sense of time. You become aware of yourself, maybe some person nearby moves. Drift off again. Time stops. Suddenly the music is over. No cadences, no decrescendo, it stops like it starts. On/off.

Philip Glass makes composed music. Musicians, technicians and administrators are involved, but the music is the vision of the composer. Philip Glass as a musical persona is the result of his early musical environment and education, the social circles the composer moved in, the cultural climate of post World War II America and the composer's own self-exploration.

Glass began studying music at an early age. As a child he studied flute at Peabody Conservatory in Baltimore and played in numerous community orchestras. Undergraduate years were spent at the University of Chicago and a masters degree was taken from the Juilliard School, where Glass studied with William Bergsma and Vincent Persichetti. Glass freely admits that his early work—everything written prior to 1965—was the music of other composers, music modeled after his teachers.

This music was well received among the establishment. Many pieces were published and in 1962 the Ford Foundation sent Glass to Pittsburgh where for two years he had the opportunity to compose high school band music. This was followed by a move to Paris, where Glass studied with Nadia Boulanger, the grand old maestra who taught American composers from Aaron Copland to Hollywood's finest. Boulanger would insist that a composer be fluent with the art of common practice harmony in the style of Johann Sebastian Bach. Glass' music is full of allusions to common practice harmony. *Music in Fifths* consists of two lines a perfect fifth apart. The upper line articulates the *c-g* perfect fifth and the lower line articulates the *f-c* perfect fifth. One of the main taboos of Western music from the sixteenth to the nineteenth century was movement in parallel fifths because this would overpower all the other voice leading, wreaking havoc in a smooth flow. *Music in Fifths* has no harmonies other than parallel fifths. The repetitive structure is used to define the perfect fifth melodically and harmonically. This piece is appropriately dedicated to Boulanger, the last bastion of common practice harmonic etiquette.

The repetitive structure is used to define the cadence in later music, beginning with *Another Look at Harmony* (1975). The cadence is traditionally treated as a return to or celebration of the tonic or as a means of modulation for the establishment of a new tonic. Glass treats the cadence as an entity for itself. The main theme of Harmony is the *f-D$_b$--B$_{bb}$/A-B-E* progression. Both halves of this formula are traditional cadences, with the *B$_{bb}$* functioning. When there is chord movement, it is as if the whole tone of the music shifts arbitrarily to another plateau, which is then also sustained. Glass has said that he uses familiar harmony because his pieces are very long (up to four hours) and he wanted the sound to be accessible.

While in Paris, Glass worked with Ravi Shankar, orchestrating a film score. From Ravi Shankar, Glass first discovered the rhythmic concepts found in Indian music. After spending six months in India, Glass went on to study with Alla Rakha, Shankar's tabla player, in New York. It is from Indian music that Glass learned the additive and subtractive rhythmic structures with their implied counterparts—augmentation and diminuation. *Music in Fifths* demonstrates Glass' use of these elements. The piece is made up of groups of ascending and descending eighth notes within a perfect fifth. The first module (repeated section) is grouped as follows: 4 up 2 down 4 up 3 down.
The following module is: 4 up 2 down 4 up 3 down 4 up 4 down.
The third module is: 4 up 2 down 4 up 4 down.
The respective rhythmic cycles are 13, 21, 14. The musical material is virtually unchanged except for the addition or subtraction of eighth-note groups, or even a single eighth note.

Music in Twelve Parts is a catalog of Glass' rhythmic techniques. Each of the individual parts describes a specific rhythmic technique. Parts One, Three, Four and Seven use divergent and overlapping figures to produce new patterns. Parts Two,

Five, Six and Eight explore augmentation and diminution within fixed rhythmic cycles. Part Nine features augmentation harmonically as well as rhythmically. The third-, seventh- and sixth-scale degrees are progressively altered. This ornamentation leads to a highly chromatic texture. The organ line ascends as the melodic minor and descends as the harmonic minor. Four simultaneous key systems are thus implied – that of the root, the fifth above, the fifth below and the third of the fifth above. The choral music of *Einstein on the Beach* verbally describes the rhythmic process. The libretto is not composed of words, but rather of solfege syllables (do re mi) and the arithmetical names for the beats. When the pattern is 4-3-2 the singers sing "one two three four, one two three, one two." The harmonic structure of *Einstein* is analogous to the additive/subtractive process. The opera is based on the series five chords, four chords, four chords, two chords and one chord. The five-chord theme is the f minor/E major progression of *Another Look at Harmony*. The four-chord sequence is a rhythmic expansion f-$E_\flat$-C-D. The f and C harmonies have identical rhythmic patterns, as do the $E_\flat$ and D harmonies. The three-chord sequence sets three key centers (A, e^7, $B_\flat$) around a central key of d. Initially, each of the key centers has its own rhythmic identity – dotted quarters for A, half notes for $B_\flat$ and eighth notes for e^7. All are played over a common 6/8 pattern. As the music develops, the key centers exchange rhythmic characteristics and the original associations are superseded by an overall texture of harmonies and meters. The two-chord sequence is an alternating arpeggiation of a^7 and g^7. The figures go through a process of rhythmic fragmentation similar to the additive/subtractive process in which small increments of the original figure are added. Initially, both key centers develop equally, retaining a symmetrical relationship. Gradually, they begin to differ until they are totally different, creating an asymmetrical figure. The two successive asymmetrical figures then mirror one another, forming a doubly long symmetrical figure. The one-chord music is an a^7 harmony undergoing a simple additive process by eighth notes, gradually expanding. Later the figure undergoes the subtractive process, returning to the original form.

The formal structure of Glass' music up to the last part of *Music in Twelve Parts* has been the succession of similar modules, each repeated for a period of time, with a simple transformation from one section to the next. The twelvth part of *Music in Twelve Parts* is unlike sections because the principal figure is in fact two distinct harmonic and melodic fragments. Each develops independently, the first harmonically with the introduction of a strong, chromatic bass line, the second rhythmically with a thirty-two-note figure expanding to two hundred and fourteen notes.

In *Another Look at Harmony*, Glass sought to explore how the evolution of the harmonic material could become the basis for an overall structure. This was to be done without changing the moment-to-moment experience of the music. Expansion and repetition of harmonic gestures, similar to the earlier treatment of pitches and melodic cells, serve this function. Harmonic entities are allowed to exist. Their

durations vary but no new chords are added once the vocabulary is established. Each chordal structure is an entity unto itself, not part of a master harmonic plan. In traditional music, a set of chords is seen in relation to an overall harmonic scheme or language, each chord having its own implicit weight as determined by the tonality. Glass allows chords and gestures to exist for themselves, creating an internal resonance through expansion and repetition. The "isness" of harmony. The music of *North Star* is a group of pieces each of which is less than four minutes long. Each articulates a single rhythmic and harmonic pattern. A harmonic and rhythmic tone is established, not a progression, which would imply motivation.

Glass' earliest modular pieces of the mid-sixties would feature two or three musicians playing figures with different subgroupings of a common meter. An eighteen-beat cycle would be divided into: 5-5-8, 6-6-6, and 9-9. By 1967, the music was monophonic (using only octaves and unisons). Emphasis was placed on the rhythmic structure, all of the other parameters remaining minimal. During this period the Philip Glass Ensemble performed regularly with original members Dickie Landry, Jon Gibson, Art Murphy, Steve Reich and Glass. The sound of the music was defined and was loudly amplified into a single fused timbre. In *Music with Changing Parts*, the orchestration became extremely dense, with winds and voices sustaining tones as they appeared in the continuous organ line. As the group became proficient with this piece, Glass began to notice how different halls create different counter melodies by the combination of the ensemble's sound with the resonance of the hall. Glass' attention shifted from the formal structure of the music to the phenomenon of sound. Glass' harmonies are a reinforcement of the overtone series, with many octaves and fifths. The ensemble is a mixture of instruments with a predominance of odd harmonics (organs and saxes) and pure-sounding flute and voice. The whistling melodies in the upper frequencies could be either the combination tones of lower organs and reeds or flute lines. In 1971 it became clear that a separate sound engineer was needed in the ensemble, and Kurt Munkacsi joined the group.

Munkacsi amplifies the ensemble by using direct-line outputs from the organ and close miking (Shure SM57) for the winds. A Neve mixing board and Altec speakers are used, with a separate monitoring system for the musicians. A wide spectrum is desired, so Munkacsi compensates for the ear's preference for midrange by boosting the upper frequencies and the lower organ bass lines. The organ levels remain fairly constant during the performance but Kurt rides gain on the winds. This is due to the variability of wind sounds depending on the reeds the player uses, the mood of the player or the density of the part. The voice is blended into the composite sound so as not to give the impression of a lead singer, but the flute is kept a little louder because of the purity of the sound (absence of higher harmonics). The chorus in *Einstein* was miked with stereo pairs of microphones, panning across the stage. Each hall the ensemble plays in has different acoustics, so the music is different from performance to performance. The reverberation times of the

hall vary as do the locations of the nodes in the standing waves. The upper frequencies are especially susceptible to differences in the material of the wall because of the shorter wavelengths. A curtain may absorb a high frequency and reflect the lower one. A lighting fixture or a picture frame may not affect the bass tones, but reflect the upper partials. This creates variability in one's perception of the upper frequencies, depending on the location of the listener in the hall.

The Philip Glass Ensemble is an economic unit. The musicians make much of their livelihood from their activities with the group. Performing Artservices manages the business affairs of the group, so the musicians have the benefits of working for a payroll. It is rare for a composer of contemporary music to maintain a working band for as long as Glass has, almost ten years. It has generally been the practice for composers to write works for different combinations of instruments, often for a specific performance. Because of the ensemble Glass has been able to write music that takes a great deal of time to be learned, and the music is properly realized under his supervision. Glass does not allow other musicians to play his scores because a correct performance could not be assured and, perhaps more importantly, it would take away paying gigs for Glass' ensemble. Glass is representative of the new group of composer/performers who compose and perform their own work. Glass has chosen not to teach at colleges or music schools to support himself. While writing *Music in Twelve Parts* he worked as a plumber, taxi driver and assistant to sculptor Richard Serra. Glass has now reached the point where he is able to support himself composing music. In the same manner that some performing groups are cooperatives, the Philip Glass Ensemble is a small business.

To be a composer is to be concerned with time. Composers have stretched time, shrunk it and made us oblivious to its passage. In the early fifties, John Cage showed that music could be pure time with *4 '33 "*. The writings of Stockhausen and the serialists equated sound with time. Pitch is an aspect of frequency which is an aspect of time. Warhol's films *Empire* and *Sleep* challenged the cinematic compression of time by letting the film last as long as the real experience would. American culture went through a reevaluation of time. Ever since radio, and particularly since the development of television, the contrast between clock time, which is the time we experience in our workaday lives, and a more subjective psychological time has been strongly felt. Entertainment shows create this contrast with their ten, fifteen or thirty minute blocks of time divided by short commercial breaks, with varying amounts of information coming across at varying rates. Disc jockeys and newscasters constantly tell the listener what the clock on the studio wall says. Electronic media bring instant news about what is happening in Hungary or Vietnam or on the moon. The atomic bomb and the cold war brought on the possibility that in the next few minutes the entire population of the world could be annihilated. With marijuana and LSD, people regularly experience time-sense distortion. Americans have developed a growing interest in Eastern thought and spirituality. Hindu gurus, Ti-

betan Buddhist monks and Japanese and Korean Zen masters have large and devoted American followings. Composers did not ignore this change in society and were often prominent. Composers such as Pauline Oliveros, La Monte Young, Phil Corner, Rhys Chatham and Charlemagne Palestine wrote music featuring very slow, almost unchanging sounds or events. It was during this period that Glass reached his musical maturity.

Glass' music is music of the moment. Classical music is an inherently hierarchical and narrative structure. The dominant ultimately leads to the tonic, with elaboration in between. Romantic composers prolonged the process through chord substitutions and modulation but ultimately could be reduced to what Heinrich Schenker called *urlinie*, or line drives. Serial composers tried to evade this hierarchy by making each pitch equally important and placing emphasis on the intervallic weights of the tone row. The serial structure, however, had to be unfolded through parametrical transformations, with the intelligence of the piece being gleaned through an accumulative experience. With music of the moment, however, the concern is not with the unfolding of a narrative or the accumulation of parts, but with the moment-to-moment experience of the music. Each of the modules in Glass' music is self-explanatory. There is no preparation for or anticipation of subsequent modules. Through repetition, the listener is drawn into the sound without being given a specific path to follow. The rich sonority and polylinearity offer numerous options for the listener. The listener structures the linear unfolding of the piece.

Landscape with Alvin Lucier

"With and without a purpose"

I think we should start talking again about emotions in music. That seems to be occupying all of my mind these days. It's so obviously there, whether I put it in or whether I do it on purpose, and I'm wondering how it gets in. It seems to be that if it's there, and if your music is say, sad, you can perceive it as sad even though sad is sort of a vague idea. And if you can perceive it as sad, then you must put the sadness in. And if it surprises you that it's there, it's just because you're not paying attention to that area of your work, you know, of your mind.

You mean you want me to talk about that?

Yes.

When you were asking the question, it struck me that, this isn't a trick answer, but it's as if thinking about putting it in would be wrong, at least for me. If I thought about putting an emotional feeling in, it wouldn't be right for me. The piece would be wrong.

Is that basically taboo in your work?

Perhaps. But you could look at it this way, that in whatever a person is doing, there's a feeling about it isn't there? When I see anybody do anything there's an emotional feeling. I think of it that way, and I don't know whether I'm answering your question, but it's like we said before, if I'm asked to do a sound track or a piece for someone—I'm thinking specifically of Viola Farber for whom I'm often asked to supply with some kind of sound for her dancing—and if she says, or I feel, there's some kind of feeling there that I have to match or supply her with, I invariably fail. It's not true for me to do that, okay? Now what I do instead is to make pieces about natural acoustical phenomena. The way sounds act; the way sounds are. People who don't like what I do would say that I'm doing experiments that any physicist can do, all right? Scientific experiments. The brain-wave piece is really not much more than the EEG situation that is carried on every day all over the world. In that sense it's simply EEG, sensing the brain waves. But when you do an EEG on somebody, you hide it. I mean it's in a hospital, and the people who do those things don't care about the situation; they care about the results. Something's wrong with somebody and they give him an EEG. They pass by the doing. And they do it right, but I'm interested in the fact that they do it and in what the human situation of that person who's having the EEG is. So I just think of it as a piece of art. In that sense I'm putting in the feeling that's already there. It's already a very touching situation for a person to be in, isn't it? To be having an EEG is a very touching situation. And since we don't

have God anymore, or at least I don't, or have those things that other cultures have, we have things that you don't know from external observations. You can observe a person who has an epileptic fit from the EEG and think that it's epilepsy or something else, but you really want to know from another source. The EEG is a wonderful tool—and not that I'm dealing with raising tools to make them do something they don't do. You see, when I first did that piece, I didn't take it very far technically. I wasn't really interested in biofeedback and the technology. I mean, if someone asked me technologically about it, I really didn't care much. What I cared more about was the feeling of the person in that particular situation, okay? The person sitting there without having to make a single muscular motion, yet showing something that you cannot observe from the outside. It's a very intimate situation, don't you think? I mean it's technology, and all this stupidity about technology being an enemy is absurd. It isn't at all; it's a tool. Technology is one tool after the other, and it's no better or no worse than any other tool. I took that feeling in the EEG out of a context where they're not interested in the feeling. They're interested in the physical facts of what brain waves are, and I really didn't care what the brain waves were. People began asking, are they this or are they that, and I just never had the answer. Other composers who did the brain wave piece after I did were more interested in that.

Were more interested in the answer.

In the technological biology. I really wasn't interested in biology. I was interested in the fact that our brains have to have an electrical charge in there; that we have it right in our heads.

[We are talking to each other during a performance of Lucier's *Outlines of Persons and Things.*]

Well, what I meant was that, for instance, when I was standing in a certain place—over there—I realized that the situation of me listening to those high frequencies of Outlines *created a feeling of* déja-vu, *and I'd been thinking recently about making people have* déja-vu *as a musical experience. And then when I was standing there I was having* déja-vu *and thinking that perhaps it was a characteristic that high frequencies have about them, and that I had been thinking so hard about making a piece of music that gave people* déja-vu *that I had succeeded. In other words, inadvertently, having thought about that for so long, it had solved itself in a camouflaged situation to the point where people who are watching the video tape and hearing those high frequencies would have* déja-vu. *And so that means that I succeeded in my intentions, which are not evil intentions at all. Like your research. I was thinking that maybe that's a kind of exploration you're doing without admitting that you're doing it. You're always describing it in very very mundane theatrical terms and I don't think that what I hear sounds like that.*

Well, let me tell you something very honestly about the choices of the sounds. This piece is about diffraction: objects opaque to sound. The sounds bounce around

the object and they change; there's a phase change and an amplitude change. And the rule is, the higher the sound in relation to the size of the object, the better the result is. So when I first tuned these oscillators, I had them at the highest possible audible sound. But I didn't like it, so I brought them down to the pitches that they are now because it reminded me of those insects in August.

Cicadas?

Yes, but without the particular shape of their sound. You know, the shape of that sound which sort of rises and falls. This is if you caught one, at one moment, and you didn't let it rise or fall. So in a sense I made a choice against the best operation of the piece, because it gave me that kind of feeling. So I'm dealing with that.

Your music always has a feeling for me. Every piece has a particular feeling. I thought it would be interesting if you could identify the point where you project that particular thing into your actions. It seems like you could do it without calling it something that you've made.

You mean do I do this in everyday life?

Yes.

Maybe. But I think of my pieces as the clearest most intense examples of feelings. I don't know if it's feelings, but qualities that I find that I like. Does that make any sense? I try to distill these ideas and present them in their purest form. Let's take this piece here [the performance of *Outlines of Persons and Things*]; you have to say that sounds diffract in everyday life all the time. Whenever you move and hear something, in a sense the sound is bounding around you; it's diffracting around you. But the complexity of the kind of a life that you lead, and the kind of sounds that exist stop you from perceiving that. Sounds are too complicated in everyday life: speech, sounds of automobiles, sounds of storms, things like that, are too complicated for you to perceive them bounding around yourself or objects. So I try to find a clear, technical way of presenting them by using pure sine waves coming out of loudspeakers that I can control. I can put the loudspeakers where I want; I can tune the sounds where I want, and get that beautiful diffraction as optimally as possible. It's like distilling; making pure those things that happen anyway, but that you don't perceive because they're too complicated.

It's also stopping people in their tracks so that they can pay attention to that phenomenon which they otherwise don't pay any attention to or they miss. I don't mean it as just an exercise in perception. You know, that wouldn't interest me; to me that's sort of a dead end. Instead it's putting people in a beautiful relationship to those phenomena.

Oh, I agree.

Also, the phenomena don't have any cultural boundaries; you know what I mean? For instance, sounds diffract the same way here as they do in India, whereas the music of India and our music are very different. There are boundaries everywhere else, stylistic boundaries. But there are no boundaries in the fact that sounds

diffract, or that echos are made, or that standing waves occur. Also, the way I work, without sounding too pretentious, is what happens after print. Now, I don't want to get into that kind of a thing, but it seems as if before language and before writing, that a lot of music from other cultures was more similar to the way mine is right now. Do you know what I mean? I think that when the gamelan started, what they were doing with their gongs and their bells was sounding out the environment they were in. I think they were interested in reverberation and the sense of time that a sound in space would have. Then when things got more civilized, they began to structure that; they began to spoil that, and put it into particular layers. And the end of that seems to me to be post-serial composition.

We were talking about up and downness.

Well, Webern, Schoenberg, and post-serialism are so connected with print, so connected with writing notes. And if you don't write in notes you get off the page. You're not thinking on a page, and if you're not thinking on a page, you might not think in two dimensions.

When you write, it's in two dimensions, and sound is not two-dimensional, as we discussed earlier. Sound radiates everywhere, all over the place. But most of the music we know is conceived on the page, two dimensionally. Okay? Now if I'm not thinking about that and if I'm not composing on the page and I really love sound, I begin to hear it as it is, which is a three-dimensional action. And as I was saying to you, my impulses are to be inspired. I mean I'm inspired by situations in which I'm able to use sound that makes you see that particular way. The sounds here are bouncing around us and Susan and Anne and that object. I'm interested in that. Now, the fact that we've put it together this way, doing that and a person scanning a canoe, presents all kinds of images and kinds of feelings and that's what you're asking me about, but that's what's hardest for me to touch.

These sounds don't sound like much; there's not much there. A sound bounces around a head or an object and it makes a phase change because you hear the direct sound, and then you hear the delayed sound and it's a fast delay. It's just very very fast and very small. So as a thing to pay attention to, compared to a climax in a Brahms symphony where the whole orchestra is doing something to make that event occur, it's very subtle. I'm asking the dancers and another person to make events that are very small. I must have a strong feeling about small events. The brain wave piece was conventional in the sense that while the turning on and off of the alpha is a very small effort, it creates an effect that's very large, which is sort of conventional because that's what a pianist does.

But I always thought of it in terms of amplification.

Right. But I mean what happens is that a very small effort produces a large effect.

Oh, I see what you mean.

Of course a piano is an amplifier too. I mean the sounding board and all that business.

In one way art has always been dealing with a state that you find yourself in. Here we are! born in this time, and these things are here. The EEG was here without me doing anything about it. See, I don't think of technology as technology. I think of it as landscape. We're born and brought up in a landscape and there's not much I can do about the fact that there are EEG amplifiers. I mean you could hardly pass a law ending it, right? There's nothing I can do to invent it or to make it go away. So I see it as a landscape. If you worked in a medical center EEG would be just like a tree; it's what you see every day. And it's touching: a composer in the nineteenth century or in another century is talking about the landscape that he's in; the trees and the poetry—and I'm just doing that. I'm doing a very very simple thing it seems.

I wonder how fine are the perceptual values we're able to deal with. Do you know what I mean? For instance, how small or how fast a sound can you perceive, and is that perception cultural? I feel perfectly at ease making a piece with very short sounds—I don't mean short in time, but consisting of a particular wave length without any idea of contrast or lull or big changes in volume. And I wonder how small the changes are that we're willing to accept. Do you know what I mean?

Yes. Could we talk a little bit about the idea of making things that make people feel good? I feel very strongly that you're trying to do something that makes people feel good. Don't you think of it as being sort of new? You could say, well, ten years ago I didn't think that, or a hundred years ago I didn't think that, or whatever; but right now you're unconsciously, in everything you do, trying to make people feel good? Do you know what I mean? Or don't you feel that?

I feel that, definitely. I guess being a teacher—you know I spend so much time doing that—I think about the pieces I make as instructive on one particular level. Diffraction, echos, brain waves, different things, you know—most people are not aware that these things occur. And I suppose if they know those, if they understand those, they're experienced on that kind of a level. I suppose when you make a piece, you imagine it as a visionary model of how society could be, you know, without going into political action. I mean, I avoid political action. There might be something wrong in that, but it seems that the people in most of my pieces can be anybody. That's an old idea that we have isn't it—that you don't need a virtuoso.

Or trained people.

You don't need trained people, you know, so anybody can get in.

Anybody can make the music.

Anybody can make the music, which is a wonderful thing. And usually I stage it so that the actions of the performers are not ugly. I try not to make the players perform in grotesque situations.

This isn't grotesque—what we're doing now.

Not at all. There was a wonderful cellist here the other day, but the physical quality of that performance was sort of grotesque. It was an extension of what cellists usually do, you know. I think a lot of the music of Schoenberg and the post-

serialists is like a distortion of what those acoustical instruments are meant to do. To me, a lot of the music that is made shouldn't be made by those instruments. You're asking a player to be grotesque, so when you get into electronics of course, you don't have to deal with that. Do you know what I mean? You're trying to do something with instruments that should not be done—the echo piece [*Vespers*, 1968], for instance, where four players are using echos to guide themselves. One of the crucial ideas in the piece, outside of the fact that you have to hear the echos that bounce off the environment, is that you don't make personal decisions about tempo, density or structure. You don't improvise, you're not expressing. Whenever players do that in that piece it's always a glaring mistake. They do things that are much better done in other music. So in that piece I try to make the players connect in a harmonious relationship through that physical quality of what echos do, and I ask them not to interfere with that. Okay? So I try to make pieces that are models of what a visionary social institution might be. Does that make sense?

Do you think of yourself—this is a hard one to ask—but do you think of yourself as having a problem communicating the intentions of what you're doing to other people, I mean, do you expect other people to do your music?

Yes. I'm always shocked that people still think the way they do about certain things. Particularly Americans. You know our trouble with an inferiority complex about our own work. I went to the West last summer, to Denver, and I met a man who was the president of the Denver Symphony. He was delighted that they'd just built an auditorium. But he was afraid because the architect had built a round auditorium or something round; it was circular. And he said to me, well you're a professor of music, don't the brass and the woodwinds have to sit in a straight line? Isn't a round room bad? And I said, well, it might be bad for them, but it's not bad for the music I do. He said, what do you mean? And I just started talking to him and I just gave him an idea. You know we were just in Bonn, right? You and David and I were just in the city of Bonn, and you know who was born there?

Who was born there? I don't know as a matter of fact—oh, Beethoven.

Beethoven. And Bonn is like Springfield, isn't it? I mean, it's about as interesting a place as Springfield, Massachusetts. I'm not demeaning Springfield, but I mean Beethoven came from a place like Springfield, right?

Or Somerville . . .

We all come from places like that. So I just gave him the idea that it's not farfetched or inconceivable that Denver could produce Beethoven. I mean, Beethoven was born in Bonn, what could I say? He must have raised a lot of money for that concert hall and it never entered his mind that it could be for something other than the recreation of the music of Beethoven. You see? And so we suffer from that feeling that most Americans have. It's beginning to change now I suppose, the feeling that, you know, Bonn is a wonderful town.

Or that Beethoven is some wonderful composer.

Bonn has an Italian restaurant. It's the best place to eat, right? It's like Springfield.

I had to give a talk the other day about electronic music, what I was doing, and you know most people are scared. They come into the studio and they're scared when they see an amplifier. They still think of it as hostile, and it's their tool. It's their tool more than anything else. I mean it's more natural. They use amplifiers more than they use flutes in their life, you know—to regulate the telephone. And I just explained to them that I was doing that also and that they shouldn't be afraid.

I asked Pauline if she thought that that music was about being afraid.

What, you mean old music?

Yes, that music of a certain period is about anxiety, or that it's about being afraid, you know.

People don't like to see things just as they are. They have such misconceptions about what you're doing, and actually sometimes it's like the simplest thing in the world. It's the language that they know. But they want to talk someone else's language. I'm not complaining. I'm sure things were always this way, but that's the only problem that I've got. I have no problems about my art. It just keeps opening up and I have things to do.

Your ideas.

I had a wonderful experience with the echolocation piece [*Vespers*, 1968], which I used to think was difficult to call a piece of music. I could see where somebody would say those pulse sounds, those echos, are just not a piece of music that you'd want to listen to. And when I went out to San Francisco last year I was interviewed on the radio. What's that station, you know?

KPFA.

KPFA. And the person that had the program signed on and off with the tape of that piece. And I said, now, wait a minute, you're just doing it because I'm here and she said, no, I sign on with that. I said, you mean people will tune in on their radio and that is what they hear and they don't immediately turn the radio off? And she said no. And I said, well, what other kind of music do you play? She said she plays Indian music, Chinese music, sound, the language of the wolves, the whales . . . So you see, it isn't all bad.

I didn't say it was bad.

See, what I'm doing here is rather like my art, isn't it?

What we're doing right at this moment?

Yes, and the whole physical quality of this sport [fly-fishing], which many people just love, right? The loops, the motion, the physical motion and the laws of wind resistance.

It's sort of light-hearted, too.

It's light-hearted, but when I do this hour after hour it sharpens my senses. You know, the standing wave piece [*Still and Moving Lines of Silence in Families of Hy-*

perbolas, 1973/74] is exactly this piece here [fly-fishing]. It's exactly what you see when you're on a stream, or on a pond. You know the first picture about the nature of sound in those acoustical books is a pebble in a pond. They show the photograph of how the surface of the pond radiates outward when you put in a pebble. And if you drop another one in and those waves interfere with each other, you have exactly this kind of thing. So for me, it's just an extension; it's sort of a light-hearted, as you said, extension of that. The loops that I make are never the same, but the action is. You try to make it the same, but each loop is slightly different.

Oh, you actually try to make it the same?

No, but you do the same thing. But you know you can see the way the line falls is always slightly different and you can pay attention to that, and I think all the men that you meet on the streams are just doing this. They just love to do this; they love just to see these simple laws of nature. The change of light, the change of the volume in the stream, the way sound diffracts around the rock. I know I'm making it sound like something that maybe it isn't, but it's the same thing. I expect the easiest thing for anybody who does these things to understand is the kind of music I do. I should think it would be easier than to understand some piece that was composed in 1880, which is about when human beings perceived things differently and acted differently. I should think people could understand our kind of music much easier.

All day I've been thinking about the idea that it would be important if you, from your experience, could describe the feeling that you get when you've decided you've just made something apart from yourself—made a piece of art or something like that. If you could describe that feeling, if you could describe that moment—as if you went to a foreign landscape, as if you went to someplace that no one else had ever been and you came back and described that place—if you could describe that moment, then it seems like other people could have that same experience if anybody were to ever watch what we're doing right this minute [fly-fishing].

Well that's the hardest thing isn't it? I could give you a trick answer and say, well that's why you made the piece, because you can't explain those feelings.

Do you think anyone can answer that?

You definitely feel it as an obligation. At least I feel it as an obligation.

Yes, okay, on one level. If I'm dealing with acoustical things, I try to get the most elegant meaning, the simplest way of execution. And when I've done that, there's a feeling of simplification and there's a kind of purifying quality about that feeling. About struggling to come up with the simplest configuration that you can, you know? It has to do with practical matters of presenting the music on the stage or in a space. That's kind of a problem, and although I don't feel that the pieces are problems to be solved, when I've come to a solution I feel there's a kind of purification. It's like alcohol; it's very pure. It's like the liquor that you drink—very distilled, transparent, you know. It's like a wonderful kind of gin.

That's funny to say for someone that doesn't drink any more.

Have you ever noticed, at the moment when you can identify that you're creating something, that previous to that, you were out of balance or you were sick?

I don't ever feel well until I . . . I feel better doing the piece.

It increases too. You feel less and less well until you start feeling well.

Yes. Right, right. I'm sure it's anxiety and doubt and all those things and just not having gotten there yet. And then when you do, you feel good when you've made something. Like you've staved something off, stopped time. I don't mean stopped time. It's like an activity without a purpose—with and without a purpose.

What without a purpose?

An activity.

But what did you say the second time?

With and without a purpose.

With and without.

You don't have to have it on one level, you know, in one way. But something demands you to do it. No, I don't think that's right. I think it's to clarify and to improve your everyday life. You know, you improve your everyday life and you hope you improve other people's everyday life.

I know what you mean.

That's not bad!

Stretching Our Imagination

by Jill Kroesen

Something triggers (inspires) Lucier, he becomes aware of (discovers) an acoustical or acoustically related phenomenon, becomes energized by a reason to explore that phenomenon, works out a performance situation (set-up) which will best emphasize (single out) or amplify that phenomenon and thereby allow it to reveal its particular properties (characteristics) to an otherwise unfamiliar audience. All of this is done in a spirit of a search for magic (the unknown) or a religious rite. He composes his pieces like scientific explorations, but unlike a scientific experiment which tries to prove a hypothesis (trying to prove something which can already be imagined), Lucier finds out about some phenomenon, then goes about finding a way to let the phenomenon reveal itself and thereby uncovers possibilities for further experimentation which we might not have imagined in the first place. "What I am trying to get at is there shouldn't be any difference between science and art and that even the most ordinary things of everyday, you know, that you do everyday, are really quite extraordinary." But the difference described above does separate his work which is a creative act from ordinary scientific experimentation and puts him in the same business with the truly creative scientist.

Each piece is composed according to basically the same pattern. There are seven main elements, some of which are somewhat interchangeable. Each element is a major area of concern. They are: the inspiration, the phenomenon he is working with, the reason for doing the piece, the set-up that he devises to reveal that phenomenon, the input that is fed into the system, the actual results that are seen and/or heard, and the implications of the study of that phenomenon. At this point I would like to make clear how Lucier's "experiments" relate to the composition of music besides the fact that he is dealing with acoustics and producing sounds. I will make an analogy between these elements and the elements in traditional composition. The inspiration is the same element as in any art work, though I have to say that I am moved by Lucier's particular "inspirations"—they seem so pure. The reason is also the same sort of element as in traditional composition: most composers wrote because it was their job and/or because some particular idea interested them. In the case of Lucier's work he says that his part, which is analogous to a composer working out melodic material and its subsequent development, is the study of the acoustical or acoustically related phenomenon. He studies the phenomenon like another composer might study a melodic idea to see what he can find in it. The actual composing

of the material note by note, however, in Lucier's case is done by the phenomenon itself. The set-up in Lucier's pieces could be analogous to the form used for traditional composition, that is the sonata form, the fugue, et cetera. The input which Alvin devises to best work with the set-up is analogous to pitches used in traditional composition. In this century we seem to have broadened the unit with which one composes, from pitches as the smallest unit to whole pieces of previously composed music as the smallest unit (as in Lucier's *The Reorchestration of the Opera "Benvenuto Cellini,"* by Hector Berlioz.) The result of Lucier's pieces is analogous to the realization of the work in a traditional situation. The implications are the same as in any art form in regard to what element in the process it is—the thoughts which the piece evokes from the audience and participants as well as whatever possibilities that the work may have opened up.

In the past the several art forms, music, painting, sculpture, writing, et cetera, were considered separate, but these separations are no longer particularly meaningful in any other way but in describing the predominant medium the work is manifested in. Thought and form are borrowed from one discipline and used in another. This is the case in the scientific community as well as the artistic community, for example in the brilliant work done by psycho-historians. Lucier visualizes music, he tries to bring out its three-dimensionality—the form it makes in space—and all the consequences thereof (sound does, after all, occur in space, a little-explored fact). Robert Ashley seems to make complicated static portraits with sound and images. Serial art has brought musical parameters to visual art, though there isn't anything in that field at press time that is significant musically. The author of this article composes theater.

Starting from the last one, I will discuss the elements of Lucier's music separately. In Lucier's work there is heavy emphasis on the *implications*. Lucier is didactic. He says: "I sort of wanted the players to learn something." The implications are usually what the audience and performers are supposed to learn from the piece—what they actually learn from the piece as well as what they could learn from it if the piece were to be explored and/or practiced more. Most of Lucier's pieces hint at skills and knowledge which humans may be looking forward to in the future based on greater awareness of the five senses and the development of ESP [extrasensory perception]. After each piece has been performed, he writes the finished score to the piece, which is a much broadened version of what actually happened in the performance of the piece. He sometimes asks for impossible things in the hope that those things will come true. He gets very conceptual at this stage, thereby stretching our imagination. For *"I am sitting in a room"* one is supposed to go away with the ability to perceive the characteristics of the room one speaks in. We could therefore more easily find the spots which our voice sounds the best in, in any given room, et cetera. For *Gentle Fire* one is supposed to learn that in unpleasant sounds are the properties of elements of a pleasant sound, so that one can hear sound in a deeper

and more tolerant way. In *The Queen of the South* one can go toward being able to see as well as hear a sound—to know what kind of physical reaction you are causing in the air when you make a sound. In *Still and Moving Lines of Silence in Families of Hyperbolas,* he takes this step further and suggests that we can not only learn to know what the geography of the sound we make is, but that we can control the sound to make the desired geography. He suggests making multiple silhouettes of the shape of someone's body with the use of standing waves.

The *results* or the actual sound or perceptions that are possible from the music of Lucier very often involve being able to see how sounds behave. It is often the transference of a perception from one medium (the usual one) to another which allows for awareness of something not usually perceived. In *The Queen of the South* we actually see granular material shifting in different patterns from the effects of the sound waves vibrating the base on which the granular material is strewn. In *Still and Moving Lines of Silence in Families of Hyperbolas,* one is made aware of where in space silences might occur when sound waves cancel each other out and what patterns are made when sounds which are slightly out of tune interact in space. In *Bird and Person Dyning* you are able to hear what someone else hears because of the use of binaural microphones. The performer wears these and therefore the sound which goes from the tiny microphone near each ear to the amplification system is a simulation of what the performer is actually hearing. One of his pieces, *Quasimodo the Great Lover* serves as a sound telescope. Because of the sound telescope one can hear sounds from greater distances through the acoustical space than we can hear with our naked ear. Lucier's brain wave piece, *Music for Solo Performer*, is a sound microscope: we can hear otherwise undetectable alpha wave activity. In other words, the audience is hearing or seeing things which we cannot hear or see with our naked ears or eyes, or have not as yet learned to perceive. The works from 1966 to 1974, all seem to necessitate perceiving the phenomenon in order to experience the art in the piece. The art was the revelation of the phenomenon. It appears that in the works from 1975 to 1977—such as *Outlines*, *Bird and Person Dyning*, the wire piece, and the flame piece—the revelation of the phenomenon is used to create the art. Though the phenomenon is still composing the music, there is plenty of art in the results without ever grasping the understanding of what the phenomenon in question is—though the revelation of the phenomenon is still there and is in fact causing art as well as being art. The emphasis has switched. I did in fact witness Lucier making decisions in a rehearsal for a concert which might make the music better and the phenomenon less apparent. He is breaking his previous rules, a definite sign of growth.

The *inputs* that he utilizes or devises to activate the systems generally involve performers who are probably doing something which anyone could do, though certain persons may work better than others. The skills needed to perform in his pieces are skills which no one probably would have developed before performing in that

particular piece. Lucier, among other things, in his work devises new skills for performers or anyone to develop. The input is not something which is improvised or worked out to be of interest in itself, but to serve only as an instrument to clarify the phenomenon (though the doing of it will most likely be interesting in itself.) For *Quasimodo the Great Lover* the players are supposed to pick the sound which will best reveal the acoustics of the spaces through which that sound is going to travel. That sound is then subjected to objective changes. The parameters of the sound are changed one at a time, and each parameter should be changed gradually in sweeps. This of course should not involve any improvising on the part of the performer in order to make the input interesting in itself, because if it were, it would only detract from the workings of the phenomenon in question. I call this way of working "passive constructivism," which describes the kind of artist that Lucier and certain other people are—anticipating the maturing of the culture of mankind into adulthood. The performers act in a passive-constructive manner as instructed by Lucier, as he has asked himself to act when devising the set-up which will reveal the phenomenon. In *Vespers,* performers click Sondols to find their way through a space and are not supposed to make any sounds just to be interesting. The inputs are generally described in terms of the task which is to be performed. There is the task—the task is to be performed and that is all. The correct performance of the task devised will produce the desired input.

Lucier's act of composition lies in the study of the phenomenon and the vision which accompanies that study. The *set-ups* use electronic technology, the technology of sound to reveal the phenomenon. He devises sound telescopes, microscopes, et cetera. He composes the use of technology, as I said, in a passive-constructive way. He is not exercising his will upon the phenomenon, but not letting it die of disuse either. He uses this technology as a tool and not like a toy (which has been what characterized especially the use of synthesizers since their development). The state of the arts in the Western world in the past hundred years has been such that most people pursuing the arts treat the making of art in the same way a little boy would play with a toy. The search for truth has not always accompanied the making of art recently (Bach for instance discovered much truth about the mechanics of harmonics). I am not saying that there is anything wrong with treating the making of art in this way, but I am somewhat convinced that as a very long era, toy art has passed and the search for truth will become a necessary endeavor for those persons who will use the word artist as a description of themselves. Lucier is an example of this trend of adherence to feminine principals rather than masculine principals. The scientist-feminine, as opposed to the creator-masculine. I don't mean that women will rule the art world, but that as every person has feminine and masculine hormones in them and has been exposed to both sexes psychologically, the feminine side is going to dominate for a while (after all, it's about time isn't it?) The world now has too much fantasy-based goings-on (something which was needed very much at one

time) and the world has had an almost lethal overdose. Getting back to our story... In regard to *Hartford Memory Space* Lucier says: "So the tape for me was a substitute for using your brain to remember something." He also says that he wants to use electronics to help touch people. "I want to use the electronic part simply as a particular means to touch people." As far as synthesizers go, he uses them to transform sounds, something which is a real value of the synthesizer since such things cannot be done acoustically without great expense (like the defense budget). Were you to try to transform the sound of a clarinet to the sound of an oboe acoustically you would have to build a room which would take a billion engineers, lots of materials, and many construction workers. The *Duke of York* and *Gentle Fire* both employ the synthesizer in the same manner described above. Many of the set-ups are basically amplification-system variations. Amplification systems allow us to hear more sounds as well as place sounds in some other places than where they are made. In "*I am sitting in a room,*" tape recorders are added to the basic amplification system and used strictly for memory purposes. The input is taped and played again in the space and taped again from the air through a microphone. In *Still and Moving Lines of Silence in Families of Hyperbolas,* a few drums placed around the space are added to the amplification system. In this case the placement of the speakers is crucial as it is in *Quasimodo the Great Lover,* where there is a series of amplification systems. In some pieces he uses only pre-electric technology, as in *Chambers* and one section of *Hartford Memory Space*, where the set-up is basically acoustic and still very simple. In *Vespers* and *Chambers,* environments large and small are the important elements of the set-up. In *Hartford Memory Space,* the old, pre-electric human brain (which isn't exactly non-electric as Lucier has pointed out in *Music for Solo Performer*) along with some acoustical instruments is the basic set-up. The set-up invariably includes as a major element the space in which the sounds occur in. (Though this is always the case, control to the degree to which Alvin exercises it is not taken.) Occasionally the environments are small such as in *Chambers* or the flame piece, and in these cases also the local environment plays a leading role in the set-up. In the case of "*I am sitting in a room,*" the environment does the composing, as does the environment in *Vespers.*

The *reasons* for each piece serve as the energy which drives Lucier to work out that particular piece—why he wants to explore that particular phenomenon. These reasons seem to be prayers of sorts or mysteries to explore, or a desire to make connections with other things. In *The Duke of York*, Alvin says: "To strengthen personal ties between two performers." This piece seems to be a love piece to Mary Lucier; he says: "I thought as an idea, I mean, this was really an idea that I could compose a piece where I could imitate those guys whose . . . vocal identities were so strong in Mary's mind and I could make a piece where I would try to sing those songs as perfectly as possible to steal from those guys vocal identities and to communicate to her, to strengthen some sort of relationship that we might have." He

wanted to connect those qualities of the other people whom Mary admired in order to expand. The reasons seem to be of a primitive religion sometimes. In *Vespers* the reason is "to pay respect to all living creatures." In *Chambers* he mentioned wanting to use "found objects"—"I was thinking then what a wonderful origin of an instrument, to have it be made as a functional thing, for some animal, it protects . . . and then when the animal dies, when it dies, this thing is a remainder . . . I mean there it is, it's left in the world . . . and it's such a beautiful thing, it should be put to some kind of use. So that's how the idea . . . " Other reasons are of a more practical nature such as the ones for *Hartford Memory Space, Gentle Fire,* and *Still and Moving Lines of Silence in Families of Hyperbolas*. In the same order the reasons are: to expand the use of traditional instruments, to learn to tolerate noise pollution (though this one is somewhat fantastic), and to learn to control sound geography (this one is fantastic for 1977). Other reasons appear to be—I can't help but call them—stubborn reasons. These include the ones for "*I am sitting in a room*" ("to iron out or smooth out the complex speech sounds that I get because I have a speech impediment.") "*I am sitting in a room*" does have the practical reason of just wanting to find the resonant frequencies of a room, and the reason for *Music for Solo Performer* (to take the EEG out of the hospital and into the concert hall. The reasons tend to fall into the categories of: practical, fantastic or not, stubborn, and spiritual/magical.

The *phenomena* which Lucier deals with are acoustical or acoustically related phenomena, that is, how sound acts, what properties it has with relation to itself and the spaces it occurs in. A phenomenon acts as the composer of the pieces. Lucier sets up a situation which will single out or amplify that phenomenon and then tries to leave it completely unaffected by human intervention of taste to show itself. In "*I am sitting in a room*" the resonant frequencies of the room are revealed through the process. Besides the original input which would be chosen to best reveal the phenomenon, and in this case was an actual explanation of the process of the set-up, the phenomenon does the rest by way of the system of re-recording the input through the air in a room. Other phenomena revealed in Lucier's pieces include echos (*Vespers*), sympathetic pitch perception (*Chambers*), standing waves (*Still and Moving Lines of Silence in Families of Hyperbolas*) and brain waves (*Music for Solo Performer*). These phenomena are isolated. The life they possess, which is in fact that they can be counted on to exist in any given acoustical situation, is revealed. The phenomenon is unleashed as a creator and used as a collaborator.

The first element, *inspiration*, is the link from everyday life to the pieces. I single this element out because Lucier himself feels that it is important. It does of course reveal something about the composer. To know what may cause him to start thinking about a piece as opposed to what may inspire another artist. There is a certain amount of interchangeability between the inspiration, the reason, and the implication, but the separation as I see it may not be wholly accurate. I feel that separating these clarifies certain issues and is another helpful tool in analyzing the pieces, and as

Lucier says: "I am probably all wrong . . . it reminds me of . . . this might be completely wrong but even if it is wrong, I don't care, it's what's in my head."—"I don't care whether it's true or not, it's my remembrance of it." Trying to separate these elements causes one to think about the piece more deeply. The inspirations are the links with everyday life. These have been direct suggestions by someone, a commission or an incident. In discussing *Chambers* he said: "There is one scene where these four men are walking along the floor of the ocean, with these huge conch shells over their heads, as if air . . . filled with air." For *The Queen of the South* he was commissioned by a group and then started to think of something which he would like to make for them. In relation to "*I am sitting in a room*," he said that a man named Edmond Dewan suggested that he work with the idea that an instrument being played over and over again in the same space would have an interesting effect. In talking about *The Duke of York* he said: "I was thinking about the singers and the stars that are so powerful in our society." He also mentioned that he wanted to do something with the idea of a juke box. Many of the inspirations are matters which disturb and interest him. In *Bird and Person Dyning* several coincidences led him to the piece, one of which was a gift of an electronic bird sent to him in the mail by someone he didn't know. It was quite a while after he received the gift before he used it in a piece. This is often the case, that the inspiration has a long gestation period before developing into a reason.

Landscape with Gordon Mumma

"I'm using the by-product of my culture"

[Gordon rides up on his bicycle.] Hi, Robert. Warm day.

It warmed up a little.

How are you, Robert?

Pretty good.

I'm breathing hard because I've been thinking.

I know. The teacher of William James said that when you breathe you don't think, and when you think you don't breathe.

You're only thinking when you're not breathing?

Yes. They're not compatible activities.

At the top of the breath, when the air is neither going in nor going out, that's when you're thinking.

Or the bottom, I guess.

Or at the bottom.

Well, we ought to talk just one more time about the efficiency of riding a bicycle. What I was saying before was that I don't understand, assuming a flat terrain and apart from friction, how it would be possible for you to economize on the energy over walking. I mean, it seems like the bicycle would have to consume exactly as much energy it takes to walk, plus the weight of the bike. And the reason you're willing to sacrifice the energy is to gain the speed. Except for doing downhill, there's no way you can save energy on a bike, is there?

Well, you can coast. Part of the problem about energy is that it's finite, but it doesn't expand itself in time the same way. You can make an exertion and you can rest. I think that for the energy commitment to distance, the bicycle is one of the most efficient means of travel. As I recall, the salmon is more efficient, okay? A part of the efficiency of the bicycle has to do with having a lot of gears and gadgets on it. It means you can optimize certain aspects of your energy outlay, depending on whether you've got steep hills or you're riding around on the grass, which is sort of silly to do. I like it because it doesn't have batteries to wear down and I don't have to plug it into the wall. But it's very fragile. It's not fragile in that it's badly built. It's that it's made like airplanes are made, with a very small safety factor, very close to one-to-one, so that minimizes the weight of it. And it's also very responsive because there's not all that heavy stuff to carry around with it. So one has to take fairly good care of it.

Do you try to go fast? Do you use it for that purpose?

I use it to go distances with as little energy and in as short a time as possible. It may or may not be fast for speed. Months go by and I don't use it. But I still have to do the maintenance just as though I'd used it, because the lubricants atrophy. You know, they fatigue in one kind of way when you use them and they atrophy from disuse.

So the principle would be that you use a small amount of lubricant too.

Yes, and relatively often. We use small batteries and change them frequently in our own equipment. It's somewhat similar to that.

Could we talk a little bit more about folk music? We were talking about that before.

This is a folk instrument.

A folk instrument?

The bicycle.

I meant folk instruments. I didn't mean folk music. God, I don't know anything about folk music. We were talking before about the age of the instrument being a factor in music.

I'm not sure that the age is what gives an instrument its category of being a folk instrument.

This looks like a leading question, but are there modern folk instruments? Are there people still inventing them?

Look, I think it has to do with what they make them for and how they use them. This is a folk instrument. Even though it's mass-produced, it's a folk instrument in that anybody can use it. But there's a certain amount of skill that you have to develop. It could be, in fact, a very high level of virtuosity, and most really interesting folk instruments allow for a great range of virtuosity. Okay? Somebody who just pedals to the store for groceries as opposed to the six-day racer; the guitar player who just plays on one, four and five, as opposed to the high classical or Flamenco tradition or something like that. It's the same instrument. Not only does the instrument allow it, but society, in different cultures, allows for that virtuosity. They are willing to recognize some validity, and some usefulness for the lowest level of virtuosity as well as the highest level of virtuosity.

But you're not saying that on folk instruments there's no virtuosity?

I'm saying that in fact there can be very great virtuosity, but it doesn't mean that that's a characteristic of folk instruments. Obviously, art musics are virtuosity-fetish kinds of things. Some level of virtuosity is the end-all of a substantial amount of art music, whatever art music turns out to be. But folk instruments are invented just as instruments. I mean, new ones are invented all the time out of materials that turn up that can be used for them. You know the oil cans that were left in Trinidad? The steel bands came from those. And the instruments made of bamboo. Well, they've been around as long as bamboo, though I've seen new ones. Those aren't electronic, but the oil drum instruments make some use of modern technology. The electronic

things, of course, might be a little less easy for people to see, but electronic instruments can also be folk instruments.

That's what we were talking about. I would call your instruments folk instruments, but I don't know why.

You'd be more likely to call the electronic instruments I make folk instruments than, say, standardized synthesizers. Is the 1976 Ford a folk instrument? I think probably not, because it's mass-produced. But there are cars that are folk instruments. Some of them, in fact, have changed their functions a lot—trucks that are made out of old car bodies and cast-offs from railroad technology, or things that you find in the hinterlands, the backlands of Australia, or South America or Africa. Those are folk instruments which don't come from purely natural sources, like the bamboo flute which came from a reed. They came from the cast-offs of some other commerce or technology.

I've always thought that the primitive strain in my music and some of the music I like is very embarrassing. It's like being forced to invent a language. It always comes out sort of primitive—the obsessions of the primitive, like primitive art.

Forced to invent . . . ? You invent a language . . .

. . . for yourself.

For yourself.

Because you don't understand the other one, or you can't get involved in the other one. So, I think that there must be an ideological equivalent of the folk instrument, too.

Of course there were old folk instruments, which include all the ways you use the voice for music. All those older ones, the ones that have been around for centuries, and which are often older than verbally recorded history, or written history, had a lot of different reasons for why they came into existence. There might have been some kind of religious reasons or social reasons, or they may have just been the whim of some person whittling on a stick or hollowing out a gourd. I don't really know. I'm not an anthropologist in that way, but there's something that strikes me as particularly distinct about what we do with folk instruments in our culture today. That is, in our technological, literate, highly affluent culture. Those of us who are born in the United States or Europe or Japan or someplace like that and grow up with those cultures may or may not have a religious motivation or social motivation. But it seems to me like there's a special glamour, an obsession of working artistically with technology, which is very prevalent, particularly in the United States. And it's not just for musicians. It's for people who build their own cameras, who make their own video synthesizers, all that sort of thing. And it's a stretch of some people's imagination to be comfortable with the idea that it's folk art, partly because it's so dependent on high technology. And I have to admit I am a little uncomfortable with it too, if I have to nail a word on it. But I think the reason I call it folk art has to do with its essentially being not mass-produced even though it might be used in some

mass media way. However it's basically not mass-produced and there's no strong standardization. If David Tudor or David Behrman or Paul DeMarinis worked with digital circuits, and used all the same circuits, we might think of it another way. But, in fact, they're all very different; they even use them differently. And that is to say, all instruments made of bamboo aren't the same instrument. The fact that it comes from a highly literate, highly technological culture that produces all of this stuff abundantly might make it seem that it doesn't belong in a folk category, but it's still used that way by the practitioners.

If you discovered some old instrument, archeologically, and it was interesting to us as consumers, if you found something like a new kind of guitar, it could become a hobby for everybody. But a folk instrument maintains its underground status. I don't mean to speak about an audience for your music, only its relationship to the technology.

That's partly because what I've made is really hard to duplicate and it doesn't have any broadly useful function—economically, politically, religiously—and I suppose on a certain level, it's a kind of esoteric entertainment. All of us are like that. I'll take the example of Terry Riley, who's achieved some really substantial popularity. It's still very focused within a particular culture, and that's not to minimize it, but certainly in my case, what I do is not musically so connected with musical traditions from the past. There may be some theatrical connections, such as in *Hornpipe* [1967], which we recorded in *Simulcast* with Bill Brooks. It doesn't sound like a French horn half the time, but I'm out there holding the instrument. Everybody's seen the horn player: it's an archetypal image which I'm perfectly conscious of—using a theatrically standard situation within which I did my acoustical experimentation. But the musical result of it is, for all but a fairly musically sophisticated audience, quite unexpected. You know, you could put on any other sound with that video and it would make about as much sense as what I'm actually doing because the sound materials and the musical continuity in context are fairly special. You recognize it, though.

I feel so comfortable with it, that what you said just reminded me that somebody else might not.

Well, a lot of people feel comfortable with it—those who live with it for a while, or those who don't come with certain expectations in a rigid way. You have to make that a part of your way of working with the art if you're dealing with innovation on any level, whether it's folkloric, high technology, or low technology. You can't always expect something to behave the way you want it to.

Do you feel that you're addressing a certain audience with your music?

I don't feel that I'm addressing one, but I certainly am clear that I'm being understood by one, and that I'm being heard by a fairly special audience. It's a small audience, but it's an audience in a lot of places.

Not too small.

It's in a lot of different places. I'd like to think I'm addressing a broader audience

than I do, and a more diverse audience than I do. But since I'm in a fairly strong musical tradition, and since musical traditions tend to be fairly strong, I have to recognize that the people who come to my performances are carrying some reservations.

Well, they carry reservations about everything.

Sure. I obviously have a connection with a fairly small tradition and my brainstorming goes on with other people who tend to be the same forty or fifty people—on a technical level, craft level, building level. That gets bigger all the time and I'm working with a relatively well-defined area that expands all the time. I can't keep up with it—that's electronic technology. I don't make acoustical instruments—although that could be the case—so I have to deal with people who already have some contact with the language of electronics. A woodworker perhaps doesn't understand cellular biology, because you don't have to work with wood on that level. And the metal sculptor may not be a metallurgist, although in fact he may know a lot about the way that metallurgy works in the real world. But it's a little hard to deal with electronic technology without having a pretty strong literate background. I mean, you know a little of the mathematics, and you know a little bit about capacitive reactance and inductive reactance, and you understand amplifiers and feedback, and it's all of that language. One doesn't have to be into that on a high level to work creatively, which is why we have the great folk-art potential for electronic technology. But I do have to share some special language with other people.

Do you think of technology politically? Is it a possibility, weirdly, that a culture that doesn't have the technological language we have could be working toward the same ends, if they just called it by some other name?

Yes. It would obviously be a very different kind of work. I made a comment about the oil drums and their assimilation to the steel bands of Trinidad. That was taking one material that you twist and bend and force and whatever you will. One can see the direct analogy to being able to work with wood or stone because you're working on a fairly grand scale, not a molecular level. With electronic technology, that's another question. Some alien non-literate tribe somewhere might run across a downed plane full of video tape recorders. Why not? That's a fairly reasonable possibility, except that it's not as reasonable as working with oil drums because there's such a whole lot of premises in the first place. The electronic technology has to suck something all the time.

The Earth. Electrical power.

It has to have an electrical source. It's already enough of a level up that we have to live in cultures with predictable electrical power, electrical energy. Now, it might just be that this plane that came down with the video equipment happened to have a solar panel generator or something, and it might be by those chance ways of trying things out that they got the thing running and discovered that it didn't work when the sun went down. And that kind of intelligence is perfectly conceivable to me. But we're now picking on little things, because they could take on aspects of it, except

that I think they probably wouldn't. The interesting thing is that they might make something out of that stuff that we wouldn't recognize.

That must be the way that traditional electronics engineering would feel about your work. It wouldn't even have to be as dramatic as the downed plane. Harold Borkin said that he was trying to convince architect-theorists that people who didn't have a history of building houses like we did didn't have to have that history in order to build plastic houses. All you have to do is teach them the plastic-house technique.

I can more commonly see the video tape being unwound and made into baskets, something useful.

You mean that this video tape is not useful? It may not be good but it's useful.

Circuit boards pulled out of the equipment and worn for decoration. We might not recognize that as video art, but that's as much video art as what we're doing.

Okay. I understand what you're saying. But that analogy's not too far off. How legitimate is your electronics? I mean your electronic music.

Well, you mentioned about what the engineers would think of what I do. I'm on the edge of disrespectful attitudes all the time towards the sacredness of technology. Early on, when I was just getting into solid state electronics, I had not accumulated enough mathematical background and basic electrical engineering to get it all together theoretically. And so I experimented. I was a tinkerer. And I would find reject-transistors that wouldn't work properly in a certain engineering context. They wouldn't have any useful function for the engineer or the high-technology company that built them. The inter-electrode capacitance was too big. But I could make them into oscillators because I needed the capacitance for the capacitance-reactance. I just looked at it a different way. Some engineers, in fact, straight-out engineers, were fairly impressed.

Because you couldn't repeat that experiment?

Because I had made something out of nothing. As far as they were concerned it was nothing. There are other examples of that. Even those of us who don't come from that tradition. I made an analog multiplier for David Tudor once. He didn't know what that was, but he had used one that I had made for somebody else and he wanted me to make him one. So I made him one. This was ten, twelve years ago. And I sent it off to him in the mail and some months later he showed up in town because he was doing a concert with John Cage. And he had this thing and he wasn't using it the way it was designed for use. There were a certain number of inputs and a certain number of outputs, and he had outputs plugged into inputs and he had inputs going into outputs, and other things which had nothing to do with the original conception of what it was for. But he had the whole thing going. He had a spectacular musical thing going by. And it's not that he misunderstood me; there was no misunderstanding at all. It was just that he asked me to make something and I had one point of reference and he had another. Apparently he had done that with the original he had worked with. Perfectly reasonable. A perfectly reasonable situation.

It's a kind of folkloric use of the device. I have a little trouble with the cultures in between the completely high technology, high literacy cultures, and the non-literate cultures, those cultures that use non-written language for communicating standardized technological things—essentially no technology.

For their music?

No, for the way we communicate. The way we learn skills.

Okay.

Where I have trouble politically is in the middle: between the high-level literacy and the non-literate. They now call them the emerging . . .

. . . the emerging composers.

Composers! The emerging countries, which are people who have access to communications.

That's the emerging composers!

They listen to the records; they see the TV; they travel to other concerts and festivals; they share the spirit of technological innovation which we have, which we were born into, but which the really non-literate, agrarian cultures don't even have a sense of, right? That's not a put-down, that's just a saying. They're in a different place.

They don't think about their resources the way we do?

They don't think about using their resources for some kind of expanded thing. You know, the cows are milked, the paddies are planted, and there's a certain procedure, but they don't have that obsession as we do with the newest kind of metal-oxide insulation-type device used in semi-conductors. You know, that little thing that we're into, happens to be big in some ways, but it's still a little idea. The people in between in the countries that have their relatively modern education with written languages, but which are not in the same place of affluence that the United States is, or certain countries in South America or Southeast Asia, who have automobiles and electrical power and schools for learning Western technology. The emerging composers, the emerging artists there are in a very strange place, because they take some of our values—that obsession with technological virtuosity—and any of them who have any political or social consciousness at all realize that in their context to have those aspirations or to follow those aspirations seems decidedly irresponsible, or at least politically unjustifiable.

Why? Because people need the resources for other kinds of human activities? Or because of something else?

The cost of getting the technology which we have is very great. You don't just buy it through the mail like we send off to Chicago in the catalogue.

We bought it from the Indians.

I'm using the by-product of my culture. Fine. I can't be something that I'm not. I can't pretend that I'm holier than something else that way. I do what I do. But I think all of us are increasingly glamorized by having a certain power that they don't,

or access to certain things that they don't. And if you're friends with people in another country, another culture, and they trust you and you trust them and you get together for things, they participate in an exchange. And they're very interested to see how they can adapt or make use of or obtain those advantages—idea advantages, technology advantages, power advantages, political advantages, or whatever they are. I mean, it's a simple thing, but they want to work that way. They see it and they understand it. They understand the artistic intrigue and integrity of what one culture does that's different from their own, and they'd like to get into this part of the action. It's different because it's a little bit like I'm taking my toys to them. And if I'm just doing a concert, collecting the fee, going away, the insulation's good. But when the communication gets two-way; when it's a real exchange, and not them listening to me, then they play with my toys a little bit and I pack the toys up and go off to the next place. And their appetite is stimulated and they have to deal with it in a much more complicated way than we do. There's a great deal of discomfort for me now in being that, and I suspect it may have happened to others of us in the Sonic Arts Union.

I used to feel that way about traveling.

That you would travel so easily.

Yes, that I would travel so easily.

You pay seven hundred dollars and you fly half way around the world in eight hours. But then the people you want to visit come to you in the same way. It may be extravagant but it's the only way.

That was a very serious question for me. Especially there was a time, about seven or eight years ago, when electronics got hard to be involved with; there was a transition period.

About five years after the solid state thing came in we could go down to the corner store and afford to buy parts. It was going in so many directions that you just couldn't put enough time in every day.

It seems to me that music that is closely related to technology should, like technology, anticipate its next moves. I was thinking that your music, probably more than that of anyone's I know, would have a predictive quality.

I should have some idea where it's going?

I mean, it seems to me that you must be thinking way ahead about what you could actualize.

I was just thinking about . . .

What are you thinking about?

I was thinking about music "closely related to technology." You made that phrase. I was going to say all music is connected with technology on some level, except now I realize that maybe singing isn't.

The distinction for me is a little bit less dramatic than for others, perhaps, because so many of my colleagues are instrument builders. They make harpsichords,

or they make membranophones, and that sort of thing. And they're just my friends, like other people who make electronic instruments. Paul DeMarinis is my friend; he solders instead of whittling wood. Sure, I have a sense of the directions I go in, but they're achieved as much as anything else by circumstances of being in the right place at the right time.

But specifically, are you tending toward a more automated kind of musical thought or more toward a performance aspect of electronics? Do you have any interest in computers?

Let me answer the first part. I deal with a kind of semi-automated thing and have done that for some time. That word "cybersonic" I put on it, which is that I made circuitry which could take certain responsibility for what happened. You may be bothered by the semantics. I made circuitry which had decision-making possibilities, and I allowed it to make decisions. I knew the kind of decisions it would make, and I made its environment for it. And then I could share decision-making with it. It's not that I wanted to create a monster or anything. It's just that there was too much for me to do and there were things that it could do, and I set up a situation so that we could interact. *Hornpipe* is a good example of that. The circuitry had certain things that it does—resonant characteristics. And by means of microphones it hears what I do and the space that I do it in, and by means of loudspeakers I hear what it does, and we adjust ourselves to each other and to the circumstances through the course of a performance. That's a sort of semi-automatic situation. It's an ensemble piece.

I would say that the performance in there predominates.

Okay, but that's what you can see; you don't see the electronics. It's almost just an idea. I can describe it in program notes.

I was wondering about your career too, just in practical terms—whether you're working on any big changes or ideas.

I made a fairly substantial change about three years ago in that I moved, for the first time in my life, into the American university system. I had never done that before. I'd done performing and composing and, you know, that's part-time, part-time-all-the-time. The change was significant because I thought it might give me an opportunity to separate myself from certain rigors of "show-biz." I mean I didn't cut off that world, but it gave me an alternative I didn't have, possibly another kind of free time to develop my work. Of course I discovered that there's another kind of energy that's taken away from you when you do that. You know that. You went to teach at Mills College. You're only happy this year because you're on sabbatical.

Well, that's not the only reason.

But the thing is that it pulled me into a fundamentally more conservative world in the first place, which may be a little hard for some people to quite fathom because the universities are where you presumably can get away with anything artistically. I've never seen that to be true. I find them fundamentally conservative.

Musically you mean?

Culturally. Maybe not politically, but culturally. They're fundamentally conservative. It gets less conservative all the time and more diverse all the time. But still, the experiments that I was involved with in my own work and other people's work, artistically and socially, in the real world of performing concerts and working with dancers, were far more risky and penetrating experiments than the things that I've been able to do in a university situation, and far more than most of my colleagues are involved with. I think part of the reason is that the university is not essentially a diverse culture. For instance, when you travel around and play concerts in Kentucky and New York and France and Japan and Australia, you're getting into different cultures, okay? You don't in universities. Even though you may have easier theoretical and quasi-historical access to different cultures in a university than if you live in Podunk, there's no risk in the way that you participate in those cultures. It's an indulgence. You may be broadening your views, but you're not living in them and having to adapt to those cultures. And the things that I do in university contexts that nobody is upset about in the real world tend to be seen as much more radical in the university. "Gee, you mean you stand up there and you play that horn, or you run around in that quarry. Who's interested in that?" I say, "Well, that's what I did before I came here."—"Well, no wonder you came here, you . . . "

. . . couldn't get a job.

"Couldn't get a job." Okay. So that's affecting me a little bit because I have to relegate my creative process to a different audience that I'm working for. So if I'm making it in the university presumably I do it for those audiences. Well, interestingly, the first year and a half that I was involved with this university I did a lot of stuff with them. And there were a lot of raised eyebrows. And it wasn't just me; I brought my friends. We did a lot of things, but now I've stopped working in the university. Oh, I work with the students that study with me, and I work with my colleagues, but I don't do my own work in the university.

You don't make the performance public?

It's too much. The feedback that I'm getting from it is not so valid for me as what I get when I take it on the road. I use the word "road" meaning going to lots of different cultures. I can't get enough diversity at the university.

Even if you go to another university? Then you have some other relationship with other people.

That helps. But it only helps minimally. The differences between one university and another are fundamentally fairly small. It's not a cultural difference. The trends, or the fads may be a little different from one place to another, but that's all. It's not fundamentally different.

I'm thinking in longer terms now—what I can get planned two years from now or one year from now rather than working continuously on pieces. The circuitry that I'm using is a little different. I'm getting into things that I put off for a few years.

I mean, the "solid state explosion" ten years ago was moving in both analog and digital directions. I chose analog because that's what I was into, analog electronics, and I let the computer freakies go along on their own way. Now the computer freakies are getting closer to me and I'm getting closer to them, so I'm going to move into that direction a little bit more technologically. But you can't do everything at once. And I'm more concerned about what kind of audiences I'm doing work for, only because I'm a little more isolated in the university than I was when I was running around performing more continuously with modern dance companies and with the Sonic Arts Union. Maybe that doesn't answer your questions about musical ideas and all of that.

Well, it's a fair answer. But the question seems more important when I'm talking to you than when I'm talking to some other composer. It seems like there's always a possibility that very radical change will be associated with technology.

You know, there's one aspect that's a little difficult when talking to a number of composers who work with technology like I do—not that they sound like I do, but who work with technology in the same sense that I do, and that is that they often will build something and use it for an application and then go on and build something else and use it for another application. And the sound materials and the process under which it's developed can have no relationship from one piece to another or only a minimally perceivable relationship. So the sense of continuity that an audience or a critic or historian might develop about, oh say, Beethoven's work, is very different from what one can develop about a person who is working with a much more rapidly changing technology. The instrument itself dictates a lot about what music you make with it. If it's a piano it's one kind of thing; if it's a string orchestra it's something else. If it's digital dividers it's one thing; if it's analog multipliers it's another. Okay. Except for a certain "in-group" who thinks that one piece is too much like the previous one. But that's because we're working in a different place in the technology. I mean I have certain things that I like in music. I like big sounds that go on a long time. But that's not really what I think about when I'm planning another piece. It's how little technology I can get together to implement it, and what kind of context I can make it in. Can I make it practical and portable so that I can use it in other places?

We talked before about the conceptual stage of your music. Whether the work with the circuitry suggests a sound domain that you were exploring, or whether you were taking the sound as a consequence of some other kind of process.

I have a better sense of that this year. I made some pieces for conventional musical instruments that were commissions. It had been a few years since I'd done that, even though I had made a lot of instrumental music. And I thought of the possibility of extending the resources of what those instruments could do—which is done very commonly these days—or of taking them in the context from which the performers were using them, which is what I decided to do. I decided to use them in their ten-

tatively traditional sound-producing ways. Then I had fun with the musical context in which I stretched things out a little bit. I pushed the edges of what they could do in a musical context. That's a concession that I made because of where those instruments came from and the traditions involved and the people who performed them.

When I work with circuitry, maybe I have a sound, but not very commonly. It's more that there's an electronic process that I've played with that has to do with resonance, and I put some things together to make different parts interact, and I play with the configuration. I may like something about the sound that results from my experimentation, and so I explore that direction. Or I might not even care about that. And very often the pieces that I do, like *Hornpipe*, evolve without a particular sound concept, except what the French horn itself does, played in its various unorthodox ways. The electronic things that came from that were somewhat coincidental until the piece got underway. Then, from one performance to another, I began to understand what I could do elaborately with the electronic circuitry. Somewhere in the history of it, it was stolen in New York City and I had to build some new equipment. Then I started at work on it with a sound focus, where I had a consciousness of the sound. But when I'm dealing with that kind of technological thing, it's more the process that I experiment with. And sometimes I let that be a good part of the pieces I do. Sometimes they're much more fixed.

I've felt that very strongly with Ambivex *[1971]. The name is nice too, because of the problem of whether it started in a sound idea or in a technological concept.*

Well, it came with a technological concept and it got into a nice ugly sound thing.

Ugly sound? No, it's a sound that one can't imagine. At least it's a sound that I could never imagine. You've invented a whole new way of hearing sound.

You find that sound. You're working and you find it. And it's a character, it's a quality that you want right there, and you make something out of it. That's what I did, which is really very folkloric. I didn't have a particular audience in mind, but I had a particular function for it, and I was just exploring. And I found that particular sound and I developed it.

The System Is the Composition Itself

by Maggi Payne

Certain concepts are quite strong in Gordon Mumma's music. Spatial usage is one. By carefully controlled use of phase relationships, amplitude, reverberation, and inharmonically related spectrums of the same sound, the sense of spatial relationships that the listener perceives can be made to change in many dimensions, including size, shape, localization, and directions of sound travel.

Even when four-channel tape machines were not commercially available, Gordon and Bob Ashley built one themselves in order to have greater control of placement of sound materials. At times an auxiliary stereo tape recorder is also used, as is the case in the performances of *Megaton for Wm. Burroughs* (1963) which uses a four-channel tape, a two-channel tape, and four channels of electronically modified live performance which usually are routed to ten discrete speakers. In this case the taped Air Force movie dialogue that occurs is routed to discrete channels, placing the airplanes and their crews in formation in the space and placing the audience in formation right along with them. Another interesting manipulation of space is *Mesa* (1966), a live-electronic piece in which Gordon uses four channels of the same input signal but shifts to inharmonically related spectrums in the four speakers, giving the listener the very uncomfortable perception of the true visual space against the perceived aural space which is quite a different space, a very disorienting experience.

Another strong concept in Gordon's work is process. Perhaps electronics, which are very process-oriented, have influenced his musical thinking, but perhaps again his thinking, being already process-oriented, had an innate affinity to the concepts of electronic processes. Even his earliest works are process-oriented. The early works involving tape illustrate his concern with process: splicing, hand-manipulated tape flanging, sounds played backwards, and the use of variable speed, his building of electronic circuitry, and his building of four-channel tape equipment. As his "cybersonic" concept developed process-thinking became synonymous with his procedures. As Gordon states in *Darmstädter Beitrage zur Neuen Musik*, "I derive the word cybersonics from cybernetics, the science of automatic control by feedback principles, and sonics. In the cybersonic console of *Hornpipe*, the sounds are controlled by their own characteristics."

The electronic network shapes the process by its own limitations and its own particular dimensions. The circuitry is the process is the score is the work itself. The performance is an exploration of what that particular process allows. At times Gor-

don has a great amount of control once the process is set in motion, and at other times he has almost no control at all. In *Hornpipe* he can choose to play resonant frequencies and thereby trigger the electronic circuitry, or he can choose not to and as a consequence have no sound emitted from the circuitry at that particular time. In a work such as *Beam*, once the process begins it is carried through; there is input from the players but virtually no conscious control coming from them. *Telepos*, although able to be manipulated, is usually left alone once the dance, and therefore the process, is in motion. The process in *Conspiracy 8* is a socio-political process with all members, including the computer, having input to the process but not really controlling it.

Another aspect of Gordon's work is that most frequently he is an active participant, a composer-performer. His music is live-performance electronic music and is usually theatrical in nature. Most of his works he either performs himself or manipulates electronically himself, or both. This includes such pieces as *Hornpipe, Ambivex, Schoolwork*, and *Megaton*.

Gordon has a natural ease with electronic circuitry, and his ability to see musical implications when the design applications are not intended for music is remarkable. From the beginning his music involved intricate electronics. And in this area he developed a systems concept to which he gave the term "cybersonics." *Medium Size Mograph* (1963) is the first piece which used this systems concept. Others include such works as *Hornpipe, Mesa, Beam, Ambivex, Dresden Interleaf* and *Music for the Venezia Space Theatre*. Gordon has also put his electronics abilities to use with numerous collaborations: with the ONCE Group, the Sonic Arts Union, and John Cage and David Tudor with the Merce Cunningham Dance Company. One of the most interesting collaborations was with Experiments in Art and Technology and resulted in his building of the sound modifier for the Pepsi-Cola pavilion for the Expo '70 in Osaka, Japan.

Gordon often builds his own instruments. Each instrument is hand crafted out of materials supplied by electronic technology and at times interfaced with traditional instruments such as bandoneon, cornet, and French horn. It is interesting that in so doing he follows the folkloric traditions of building one's instruments with whatever materials are on hand, and in the United States of America, that means electronic technology. Each of his electronic systems forms a distinct instrument, with its own definitions, limitations and capabilities. The system is, in a sense, the composition itself, forming the rules which determine the possibilities for the "process" to occur.

As Gordon states in the 1967 AES [Audio Engineering Society] Preprint, "My own electronic music equipment is designed as part of the process of composing my music. I am really like the composer who builds his own instruments, though most of my 'instruments' are inseparable from the compositions themselves . . . My 'end product' is more than a package of electronic hardware, it is a performance of music

... My decisions about electronic procedures, circuitry, and configurations are strongly influenced by the requirements of my profession as a music maker. This is one reason why I consider that my designing and building of circuits is really 'composing'. I am simply employing electronic technology in the achievement of my art ... I am concerned with 'system-concepts': configurations which include sound sources, electronic modification circuitry, control or logic circuitry, playback apparatus (power amplifiers, loudspeakers, and the auditorium), and even social conditions, beyond the confines of technology. I suggest that the most important creative aspect of live-performance electronic music technology is not this or that circuit innovations, but rather the total configuration itself."

Gordon's work is quite diverse with regard to performance situations and forces required for performance. It ranges from purely instrumental music to live-performance works involving electronic circuitry. There is also a growing body of work intended as chamber music for intimate performance situations and music produced with tape performance or record reproduction in mind.

Hornpipe (1967)

Hornpipe is a work for French horn, Waldhorn, and cybersonic console. The cybersonic console is a small analog computer which attaches to the horn player's belt. The circuitry consists of a parallel configuration of automatically tunable, gated amplifiers which are set in motion by the sounds of the horn and adjust their resonances to compliment the acoustical resonances of the performance space. These sounds are picked up by two miniature microphones on the console. Each gated amplifier has a memory which accumulates information according to the sequence of sounds played by the hornist and their effect on the resonances of the space, and when sufficient information has been obtained the electronic gate opens, thus emitting the resonance of that particular amplifier through the loudspeakers. This sound is in turn picked up by other channels of the console and reinterpreted, possibly with the additional input of more sounds from the French horn, thereby activating more circuits to open and creating further combinations. Since the circuits are stereophonic, they also respond to each other. Because the hornist at times plays with a double reed as opposed to the traditional mouthpiece, he elicits sounds richer in harmonics, therefore feeding more complex information into the cybersonic console. In essence the system is a highly controlled and sophisticated feedback network, and as such characteristically utilizes the resonances of the space and the positioning of the performer (and therefore the microphones) in relation to the placement of the speakers.

The performance starts with the solo horn. The circuits are balanced, and not having stored sufficient information to trigger the opening of one of the gates, there is no sound from the circuitry. As the hornist walks throughout the space, playing either abrupt events or sustained sounds with mouthpiece or reed, he explores the

resonances of the space by turning as he plays and/or walking as he plays. When sufficient information has been stored by the resonant circuits, a gate opens, emitting electronic sounds, the length of time it remains open depending on the conditions of the remaining gated amplifiers. Whether this in turn opens other gates depends on the information they have stored and the present input information. The electronic emissions range from very pure undulating sounds to very complex sounds as more and more gates are simultaneously open and interact with one another. The electronic sounds are triggered by a horn sound or the present resonances in the space, but often also the hornist quickly terminates the sound by playing non-resonant frequencies. The performance comes to an end as the hornist plays frequencies which are non-resonant to the tuned circuits and the space and therefore silences them, ending as beginning, with solo horn.

Megaton for Wm. Burroughs (1963)

Megaton, a composition of war materials, was first presented at the ONCE Festival in Ann Arbor. It is a grandiose multimedia undertaking, involving five performers using specially built electronic and cybersonic instruments in conjunction with sound-producing objects such as a wood and wire sculpture, a specially prepared piano, objects of wood, metal, and plastic, all of which are outed to four channels, with six channels consisting of magnetic tape, making a total of ten channels. The performers form an attack-bomber crew on its way to drop a megaton bomb. Each performer is isolated in the darkened performance area (with blinking red lights high above) and is connected by intercom-headphones to the director, Gordon, who acts as the navigator-commander.

The piece evolves from purely electronic sounds through more realistic sounds to natural sounds. The structure of the piece is always the same, but the sections are expandable, able to be shortened or lengthened according to the performance materials. *Megaton* begins in total darkness with sustained and harsh sound complexes. As this introduction fades, the sculpture and performers are gradually illuminated. During this live performance, section wires overhead carry projectile-like flashing objects, setting the wires into vibration, which is amplified to combine with the rest of the complex sound montage. This very long section begins with a new sound texture of single soft modified live and electronic sounds which become louder, more overlapping, more complex, very dense. There are sounds which increasingly resemble instruments of war and war-associated sounds: gun-fire, rocket-like sounds, and underlying sounds conveying a sense of general foreboding. The gunfire sounds work against high circling modulated sounds, to which is added the loud snapping of toy crickets, all fading into airplane bomber sounds, followed by intense dialogues from old English Air Force movies in which the bomber crews are en route to a bombing attack, and finally the bombs are released and explode. There is a very short excerpt of highly romanticized war movie music, a short electronic leadout,

and in a separate area of the space are heard several bars of a jazz drum riff, the drummer illuminated by an isolated pool of light.

The Dresden Interleaf 13 February 1945 (1965)

The Dresden Interleaf is a piece which derives its title from the incendiary bombing of Dresden, Germany, that took place for two days near the end of World War II. Dresden had been designated by international agreement between the Allied and Axis Powers to be one of several non-strategic cities, in fact, a city of only historic and artistic significance. The Allied Forces, however, decided to perform an experiment—to firebomb a city with no previous war damage in order to ascertain the exact effect of firebombing uncomplicated by previous war damage; and Dresden was the choice. The fire bombing was, tragically, a great success. In two days the death toll was a hundred and thirty-five thousand people, mostly suffering death by suffocation, topping that of any other activity in the Second World War—a greater death toll than either Hiroshima or Nagasaki. It happened that right at the end of 1964, as Gordon was just putting the finishing touches on his *Dresden Interleaf*, the first major book came out describing the Dresden firestorming. It was written by a historian who had been the first to obtain access to the just-declassified documents. By sheer coincidence the premiere performance took place on 13 February 1965, exactly twenty years after the fire storm.

The piece was originally performed live with four channels of tape. It is in four-channel tape form currently as well as stereo record form, although it can be performed live when conditions permit. In the live performance, four alcohol-powered model airplane engines are used. The piece consists of three sections. The first third is built of massive blocks of grating, raspy electronic sounds, frequency-shifted in all four channels, abruptly alternating with large blocks of silence. The second section contains many different sound layers, starting rather gently and slowly crescendoing into the extremely loud model airplane sounds which are abruptly cut short. Following a short silence the third, long sustained section, begins. It consists of pure, ringing choirs of sounds, dissolving into one another, emerging from and disappearing into the surface of sound, and becoming slowly more complex in character. *The Dresden Interleaf*, although of only twelve minutes' duration, is a dramatic memorial to the firestorm victims of Dresden.

Music for the Venezia Space Theatre (1964)

Music for the Venezia Space Theatre has its origins with the Space Theatre of painter, sculptor, light-projection artist Milton Cohen. Milton Cohen established the Space Theatre in Ann Arbor for live performances of his unusual and intricate light-projection art in conjunction with a collaborative group which included artists Milton Cohen, Caroline Cohen, and Mary Ashley; composer performers Gordon Mumma and Robert Ashley; architects Harold Borkin and Joseph Wehrer; and filmmaker

George Manupelli. This group performed a semi-improvisatory event each week at the Space Theatre. The group was invited to perform at the Venice Biennale Festival in Italy in 1964 through the influence of Luigi Nono. Upon arriving in Venice they set up in a top floor room at the Venice Opera House, which they fortunately had all to themselves, and performed once each day of the festival their elaborate light projection, film sculpture, modern dance, and electronic music collaborative event. Gordon performed several sections of four-channel tape which were interspersed with virtually no discernable transitions with the live music performance of Bob Ashley and the collaborative group events. When Barney Childs asked for music for a series of records he was producing for Advance Records, Gordon took three of the tape sections and put them into a sequence, making a continuous piece. Although it is available in both mono and stereo record format, it was conceived for the spatial effects possible with four channels and is also available as a four-channel tape.

The first section is purely electronic, with continuously fluctuating frequency modulated and amplitude modulated sounds which emerge and submerge, constantly dissolving into the fluctuating texture. There is a short silence and the second section begins with a barrage of electronically modified concrete sounds, in part drawn from André Boucourechliev's *Texte II*, a classic musique concrète composition itself, very thick and very active. A short silence delineates the ethereal electronic third section. Here the sounds are reverberant, recessed into the space with much attention given to spatial shifting and very delicate hand-manipulated tape flanging.

Mesa (1966)

In 1966 Gordon was commissioned by Merce Cunningham to compose a piece for his new modern dance composition, *Place*. The result of this first piece for the Cunningham Dance Company was *Mesa*, for bandoneon, an Argentine accordion-like instrument, played by David Tudor, and cybersonic console, operated by Gordon.

The character of this piece is one of sustained gradually changing complex sounds interrupted by occasional bursts of extremely loud sounds. Another aspect deals with inharmonic sound spectrums in extremes of sound densities being routed through different loudspeakers in the space. One of the new circuits designed in collaboration with Doctor William Ribbens was the Voltage Controlled Attenuator which served to extend the dynamic range of the system even further.

The general configuration of the piece begins with six microphones having different frequency responses attached to the two sides of the bandoneon, three per side. One mike on each side is routed to the circuitry of the opposite side and is mixed with one of the two remaining mikes, leaving one unmixed mike per side, with a total of four channels. The two unmixed channels are primary; the two mixed channels are outriggers. The sound modifications include frequency shifting, mul-

tipliers, amplitude and phase modulation, voltage-controlled filters, voltage-controlled attenuators, and time delay, the latter being achieved by subjecting the VCA [voltage-controlled amplifier] control signals to frequency-sensitive thermal-delay circuitry. Logic circuitry serves to route the control signals and the program signals from one of the four channels to another. The control signals for the sound modifications are derived from the sounds of the bandoneon and are therefore termed "cybersonic" modifications by Gordon.

Place deals with alienation, isolation, and human anxiety. Although the performance of the music for *Place* is meant only to co-exist in the same space and time as the dance, the uneasiness of the inharmonic distribution of rather harsh sounds from the modified bandoneon interrupted by the extremely loud outbursts reinforces the overall atmosphere. The constantly changing inharmonic distribution continually reshapes the listener's spatial perspective, continually shifting him from one "perceived" room size to another, thus totally disorienting the listener's sense of place.

The Mographs (1962–64)

The Mographs are a series of compositions for various combinations of pianos and pianists. Only one involves electronics, and is, in fact, the first piece using "cybersonics" that Gordon wrote. There are many sizes of *Mographs*—very small, small, medium, large, and more than one of each size (indicated by the year). Most of the Mographs are notated conventionally. There is one exception, however, and that is *Medium Size Mograph* (1962). It uses a vertical notation with symbols and a choreographic notation, similar to Laban notation for dancers. The symbols all have specific physical gestures that the pianist makes in performing—a pizzicato, striking a key, a harmonic, and so forth. The gestures are notated as either solid or open. If solid, both the physical gesture and the associated sound are made; if open only, the gesture is made, giving a choreographic aspect to the piece. The crossing over of hands and similar pianistic gestures are all specifically notated, with the actual pitches chosen by the performer within the range of specified gestures.

The Mograph involving electronics, *Medium Size Mograph* (1963), for piano four hands, is the first cybersonic piece. The piano is miked and routed to a compressor-limiter built by Gordon, which has the unusual characteristic of allowing the initial transients to pass at full volume with an immediate sharp attenuation followed by an amplitude increase and an expanded sustain, as opposed to the normal decay of the piano. In essence the circuitry performs the function of an envelope shaper, altering the normal amplitude envelope of the piano. The result of the modifications is played through a loudspeaker placed underneath the piano sounding board. A tape of a previous rehearsal is played simultaneously and mixed with the original processed signal in the loudspeaker underneath the piano. The network is circular, the mike picking up both the live and previously processed tape of the pi-

ano simultaneously with the circuitry's processing of same. The tape also serves as a model for other players to indicate the correct adjustment of the electronic equipment so that the envelope can be shaped properly. In 1963, when the piece was published, the technical vocabulary was not able to convey that information easily to most performers. One final aspect of this series of pieces is their derivation. The Mographs are derived architecturally from seismographs, hence the pun "... size Mographs." At the time of the series, Gordon was working on a government project to determine if earthquake and underground nuclear explosion activities could be distinguished from each other. He had access to seismographs used in the study and based the contours of the pieces on the most interesting ones.

Beam (1969)

Beam is the first of three pieces using accelerometers. *Beam* was composed for the Cross Talk Intermedia Festival in Tokyo, Japan, in 1969. Its first performance was in the three-thousand-capacity Yoyogi gymnasium designed by architect Kenzo Tange. The piece is for two violins or violin and viola. Each player is given a score with six double-stops, each to be played the duration of one bow length. The players wear "bow-arm coordinate sleeves" which contain accelerometers. The accelerations and decelerations of the bow arm are sensed by the accelerometers. An analysis of these signals is made by the cybersonic modification circuitry which is also analyzing the sounds that are being played. From these interacting analyses is derived the information which determines the pitch shift of the sound, the score number that is displayed on a digital readout which reads numbers one through six and thus indicates which of the six double-stops the player is to play next, and thirdly, how the sound is rocked back and forth in the space. This rocking motion derives from the deployment of two pairs of loudspeakers mounted above the space. Each pair is assigned one sound, and that sound is continually panned, or rocked, between its two speakers, independently from the other pair, thus forming two parallel "beams" of sound high overhead in the space. Originally Gordon had intended to wire circuitry directly to the muscles of the performers, deriving pulses that change according to the contraction and fatigue of the bow-arm muscles, but due to the impracticality of that situation, the "bow-arm coordinate sleeves" were substituted, and the original intention was maintained. The piece is exquisite, conceptually with regard to the interrelatedness of the network, and aurally, with the walking beam effect immersing the audience in the constant double rocking motions of the sounds.

Telepos (1971)

Another composition for the Merce Cunningham Dance Company is *Telepos*, for the dance, *TV Rerun*, for ten dancers. This is one of the few instances in which the music is closely related to the dance. Gordon designed three lightweight elastic belts for the dancers to wear. Each belt has three accelerometers which switch a resis-

tance-tuned triangle oscillator (Signetics 566 function generator) via a matrix of resistors, according to the accelerations and decelerations of the dancers. The accelerometers are very sensitive, so that even when a dancer is standing still they sense the breathing and switch resistors accordingly. There are occasions when one of the resistors in the divider chain puts the signal above or below the audio range or out of the passband of the transmitter or receiver, in which case no sound may be heard. The belts are configured so that if worn upside down there is one set of frequencies and if right side up, another, thus giving six different spectrums of frequencies. When the dancers exchange belts during the performance, they invert the belts. One belt transmits (in the audio range) directly to the orchestra pit and is routed to speakers without modification. The second belt transmits signals with frequencies in the range of twenty thousand to forty thousand hertz and is shifted down any degree desirable in the pit. The third belt transmits in the audio range but is demodulated and in the process puts out sum and difference frequencies. Therefore there are three different source characteristics with six different frequency spectrums. Generally, once an optimum condition is obtained there is no further manipulation of the sound during that performance, leaving the movements of the dancers to control the sound.

Ambivex (1972)

Ambivex is a live electronic piece which is the third to use accelerometers. In this piece the cornet player, using a French horn mouthpiece and various kinds of mutes, attaches four accelerometers to the fingers of his right hand. The initial pitch, played with a particular valve position, sets off a whole train of modification events. The pitch is picked up by several brass instrument pickups inserted into holes drilled into the tubing of the cornet. The signals are routed to digital circuitry which consists of frequency dividers at any whole integer division, such as an octave or an octave and a fifth below the fundamental. The output is modified squarewaves. A digital loudness control sets discrete loudness levels. All of the control except for the initial pitch the cornet player makes comes from inflections of the fingers. The frequency division, the changes in loudness, as well as the stereo-spatial deployment come from the accelerometers on the fingers. The fourth accelerometer, on the small finger serves as a position sensor, sensing whether the cornet is held high or low and thereby giving another class of division.

The circuitry is all contained on the right hand and arm of the player, with two lines trailing out on the stage to the amplifiers and speakers. The player initiates a sound, and there emerges a section of thunderous sound. The player stops for ten or twenty seconds, adjusts the digital circuitry for a different configuration and perhaps changes to a different kind of mute (made of virtually anything, including a length of plastic hose) and initiates the next thunderous sound event which has a different character due to the changes. There is a continual disruption as the sound

stops and new programming is entered into the circuitry. There is also another sound present: the sound of a cassette tape which contains sharply articulated harmonica outbursts, not loud, which cue the performer as to his or her whereabouts in the piece. These sounds come from a third speaker, audible to the audience and integral to the piece. The sound emitted from the loudspeakers is thunderous, very low-pitched due to the dividers, and composed of modified squarewaves—odd harmonics, but put through resonant filters.

It is a very theatrical piece—with all of the electronic gadgetry visible on the right arm and with the dichotomy of a gentle little cornet (with odd things stuck into its bell) making the very low, very loud, very uncornet-like sounds with the sound of the harmonica cue-track bleeps surfacing now and then.

Pepsi Pavilion (1970)

Gordon's technical innovations have always been well integrated with his musical creativity. As early as 1958 he and Bob Ashley built their own independent studio in Ann Arbor, the Cooperative Studio for Electronic Music. He has also designed special equipment for John Cage and David Tudor for the Merce Cunningham Dance Company performances, as well as his own cybersonic electronics.

In 1970 Gordon designed and built the sound modification device for the Pepsi-Cola Pavilion for Expo '70 in Osaka, Japan. The project, coordinated by Experiments in Art and Technology, was an international collaboration of over seventy-five artists, technicians, and industries. The pavilion consisted of a hundred-and-twenty-foot-diameter white plastic geodesic dome surrounded by artificial fog. The interior of the dome was a ninety-foot-high hemispherical mirror dome. There were lasers and other optical systems, a heliostat sculpture, and numerous other elements contributing to this remarkable event. David Tudor and engineer Larry Owens developed the overall sound system and speaker distribution system and Gordon took responsibility for the sound modification device.

The general sound system took the form of eight summing amps with four inputs each. The outputs of the summing amps were divided into two groups of four and routed through a four-by-four switching matrix which was either manually controlled or controlled by a punched-paper tape programmer. The eight outputs were interfaced with the sound modifier which was an eight-in, eight-out device, containing three modifications in series per channel. Gordon used the Motorola 1545 integrated circuit to build the entire circuit. It is a two-quadrant multiplier, which had been designed for video switching, giving it a very broad bandwidth with balanced input and output. A signal was able to be frequency modulated, amplitude modulated, and/or filtered; bypass circuits allowed only one, two, all three, or no modifications to take place. Each channel had twelve controls which were manually operated to alter the characteristics of the modifier, with the high pass filter for each channel having a slightly different cut-off frequency to allow for a greater diversity

when all eight channels were used simultaneously. The system was highly flexible. A signal could be processed and reprocessed either by being fed back through the same circuitry or through that of another channel.

Following the eight channels was the audio switching matrix which switched the eight signals in sequences according to a sequence program card to the rhombic grid of thirty-seven loudspeakers placed behind the mirror dome. The timing of the switching was controlled by hard-wired programming cards, a number of which were available, but which individual programmers could make for themselves if they so desired. This type of programming allowed origins and movement of sounds from point source, line source, and field source.

Unfortunately, after one month's operation, Experiments in Art and Technology, at the request of Pepsi-Cola, turned over the programming and operations of the pavilion to Pepsi-Cola. Only a few programmers were able to make use of the system within that time, but David Tudor did produce a number of pieces using the modifier. They go by such titles as *Anima Pepsi*, *Pepscillator*, and *Pepsibird*.

Conspiracy 8 (1970)

Conspiracy 8 involves the live interaction of two to eight performers on undesignated instruments with a digital computer. The first performance was in the Artificial Intelligence Laboratory of Project MAC at the Massachusetts Institute of Technology. It was done in collaboration with Stephen Smolier, a computer expert, using MIT's PDP-6. The second performance, at the Guggenheim Museum in New York City, used the same computer via a remote terminal connected by data-links. With the advent of micro-computers the piece can now be done virtually anywhere. The computer is fed information by the teletype operator regarding the performance activities—how many are playing at the time, et cetera, and then it makes a decision according to a basic program, and sends back instructions to the performers. The computer determines what the activity is—it tells the performers how to behave, and they can choose to give in, resist, or make allegiances. The social situation resembles that of the Conspiracy Eight courtroom in Chicago, the computer trying to influence the events but having limited control similar to the judge in the courtroom. As Gordon states, "It is a theatre of communication under hazardous conditions. In an interaction of diverse personalities the forces of social regulations are neither predictable nor necessarily just. The viability and survival of a democratic ensemble implies (virtually requires) a condition of constantly changing allegiances, raising unresolvable questions of conspiracy, and reactions of repression." The process continues throughout the performance, with the computer interacting not only as a personality in its own right, making decisions, but also as a sonic input to the performance. Had the display been a CRT [cathode ray tube] display instead of a teletype, its input would have been visual, although the operation of a teletype is rather theatrical.

It is interesting to note that in this piece Gordon probably has the least amount of control over sound content than in any of his other pieces. His only control is that allowed in the process when he participates as a performer in the piece.

Schoolwork (1970)

Schoolwork is a continually evolving piece. It originally consisted of Gordon performing on the musical saw alternating with his reading of grossly racist statements that he had found in his elementary school textbooks. It is interesting to note that these same stereotyping textbooks, slightly updated, are still used in the Massachusetts school system. The quotes have more recently been replaced by various folk instruments including the bowed psalter, bandoneon, piano melodica, and harmonica. The structure and content of the piece are not notated, but taught by one person to the others in folkloric tradition. In some performances Gordon uses a tape of a previous performance made in Stockholm with David Behrman and Kathy Morton playing bowed psalter and piano melodica along with the saw. This tape is played through a speaker which is not visible to the audience. It is played very softly, about half the volume of the live saw, so that it forms an echo. The tape runs continuously, but is gated according to stored information derived from the saw, so it is not always heard. The tape is otherwise unaltered. The piece is very delicate, Gordon's particular use of the musical saw is very beautiful, as is the inherent timbre of the saw. There is often the intrigue of not being able to distinguish which instrument is producing which sounds when in ensemble with the other folk instruments.

Some Voltage Drop (1974)

Some Voltage Drop is a live performance construct that is expandable, variable in content, and adaptable according to the existing resources. It is constructed of various pieces, at times including works such as *Hornpipe*, *Ambivex*, and *Schoolwork*, as well as recent instrumental pieces, which are put together in such as way as to form a complete musical theatre event. The first performance was in Paris with the Sonic Arts Union during the Festival d'Automne à Paris (1974). It lasted an entire evening and included slide projection and other visual material. When it was performed in New Haven in October of the same year, it was done with different elements and was much shorter. It has become a way of integrating modular elements, old and new, into a complete entity of variable length.

Wooden Pajamas (1973)

Wooden Pajamas begins with an introductory statement, spoken in Spanish, which translates as: "In response to a question from a United States journalist, on the morning of his death, Salvador Allende replied 'They will have to carry me out of here in wooden pajamas.'" The correspondent had asked Allende whether he would compromise if the army were in revolt and there were tanks in the streets. Gordon

was struck that the idiom "pijama di madera" in Spanish has the same implication as "wooden pajamas" in English, and he composed this piece in two weeks' time. In the original performances of this 3′ 20″ tape piece, the introduction was read live in the local language, but subsequent performances include the text, read in Spanish, as part of the tape. The sound sources, drums, are treated with no other electronic modifications than multi-tracking with speed variations.

Equale: Zero Crossing (1976)

In 1976 Gordon was commissioned by John Adams of the San Francisco Conservatory to compose an instrumental piece. He chose seven disparate instruments: violin, flute, clarinet, sax, bassoon, cello, and bandoneon. Traditionally an equale is a genre using a number of the same musical resources such as four trombones. In this instance Gordon used disparate instruments but was interested in achieving an equalness, a balanced relationship among them, not necessarily at any one moment in the piece, but rather over time in the overall structure. The zero crossing concept has to do with the avoidance of one pitch class in the piece. The avoided pitch works as the pivot point—the melodic lines continually cross that zero point—the silent pitch that remains unstated until the end.

Passenger Pigeon (1976)

Passenger Pigeon is a live electronic performance piece using an analog synthesizer with keyboard. A tape is played only at the beginning of the performance. A group of Venezuelan music students improvising on coke bottles and spiral notebook binders provide the material for this introductory tape sequence. The principle of the piece is related to the title. The passenger pigeon was a North American bird that was very populous until the early part of the twentieth century. As the United States was "settled," the passenger pigeon suffered the same fate as the buffalo. It was killed merely for sport, the last having died in the Cincinnati zoo in 1914. The principle of the piece refers to genocidal policies and to the implications of declining resources.

In *Passenger Pigeon* Gordon requires a specified musical result, a certain complexity of sound and continuity within an evolution from the beginning to the end of the piece. He specifies what has to be achieved and how one begins to achieve it, using all of the modules in the synthesizer in a very elaborate patch. However, from one performance to the next, the performer must eliminate one module, so that he has diminishing resources to accomplish the specified musical end. In Gordon's performance of the piece he has achieved up to eight or nine performances before he could no longer make the piece work, ending up in the most resource-depleted version with one oscillator, one voltage controlled amplifier, the keyboard, and the pitch follower. As with the *Eleven Note Pieces* and *Decimal Passacaglia* and *Hornpipe*, Gordon made this piece for himself to perform, although it is performable by others who have access to a standard analog synthesizer with a good pitch follower.

Earheart: Flights, Formations, and Starry Nights (1977)
Echo-BDC (1978)

[Two pieces, predominantly on tape, for the Portland Dance Theatre]

During the period of 1977–78 Gordon composed two large-scale works in collaborative efforts with the Portland Dance Theatre. The first, *Earheart*, is a one hour and twenty minute long production which involves Jann MacCauley and other members of the Portland Dance Theatre as choreographers, Tom Robbins as author, David Cotter as sculptor, and Gordon Mumma as composer. Although *Earheart* does not follow a narrative idea, the text which Tom Robbins wrote and which he reads live in performance is in three sections. The first refers to Amelia Earhart, the second to relationships of pairs, and the third is a series of parables about Marilyn Monroe and Vincent van Gogh. The work uses sounds of both electronic and acoustical origin and uses both tape and the live performers Gordon, playing bandoneon and musical saw, and Tom Robbins, reading the text. There is also a tape version which includes the live performance segments. This piece and the following collaborative effort, *Echo*, are not intended to stand alone as concert pieces, but are internal to the performance context.

Echo again was a collaborative effort, this time involving Jann MacCauley and other members of the Portland Dance Theatre as choreographers, scenic designer Hank Pandor and lighting designer Peter West. This visually extravagant work of one hour and fifteen minutes duration is full of nineteenth-century stage magic with mirrored surfaces and projected imagery which continually change during the performance. Pandor was involved with the idea of visual echo and Gordon with that of sound reflections (the reverse of the usual relationships). Gordon worked with Doppler shifts and structurally with canonic structure and various symmetries both over time (horizontally) and vertically. There are four large sections of the work, each very different in character.

Cirqualz (1980)

Cirqualz is a 5′20″ tape piece which was commissioned by choreographer Jann MacCauley for her modern dance ensemble Cirque. MacCauley suggested a piece in three-quarter time, which request Gordon fulfilled in a most subtle fashion, as implied by the title of the piece. The sound sources are screamers and tags from circus bands as well as such sources as Beethoven's *Eroica* and Strauss' *Ein Heldenleben*. Editing and multitrack recording were the primary composition processes and although the sound sources are many, the nature of the piece is rather sparse. In a subtle reference to a rather frequently found relationship between choreographers and composers, Gordon mentions: "In some ways *Cirqualz* is about heroes, including, as the composer told the choreographer, composers who respond to last-minute requests."

Eleven Note Pieces and Decimal Passacaglia (1978)

This set of twelve pieces written for harpsichord takes about seven minutes to perform. Each section with the exception of the passacaglia is dedicated to "cherished friends or esteemed persons," which musical reference either to the personality or the music associated with the person specified. Each of the eleven statements is elegant, a clear and concise statement without development. Although derived formally from the Baroque keyboard procedures of toccata, fantasia, passacaglia, inversion and retrograde, the pieces are twentieth-century with regard to pitch and harmonic content.

The *Decimal Passacaglia* has no dedication. It is a play on the genre of the passacaglia, a structure with a repeated ground bass. The meter of ten is subdivided into groups of three, making a long sequence of thirty, the ground bass repeating every ten beats. This presents a pseudo-polytemporal approach to the idea of the passacaglia. There are only harmonic variations, with the rhythm kept simple, the harmonic variations wonderfully strange and subtle.

Although the pieces were composed by Gordon for personal use on his newly built harpsichord, the pieces have been presented in concert performance on various keyboard instruments.

Pontpoint (1966–80)

Work on *Pontpoint* began in 1966, following the premiere of *Mesa*. *Mesa* had dynamic range and continuity as its main aspects and secondarily that of spatial location. Gordon wanted, in *Pontpoint*, to further develop the ideas of carefully controlled movement in space, spatial definition and location using very dry monaural sound sources—electronic, artificial non-existent spaces in which the movement of sound would be synthesized.

The result is the 16′ 20″ stereo tape composition *Pontpoint*. The original sound materials are bandoneon and psalter. The effects of spatial modulation are a result of careful manipulation of phase, amplitude, and frequency spectra. Spatial counterpoint is also apparent with up to three distinct voices moving at the same time in different directional and temporal patterns. The spatial movement is not confined to the horizontal and Z axes, but also occurs vertically. As timbre, loudness and spatial movement provide the musical continuity of the work, pitch content is kept relatively simple in order that the carefully controlled spatial elements can be discerned. Although Gordon made this piece with various listening environments in mind, the most effective is in a binaural situation, using headphones.

Pontpoint's eight sections range from 29″ to 4′ 22″ in duration, each separated by between 11″ and 22″ of silence. The sections, although derived only from psalter and bandoneon sound sources, are very diverse. The least complex statement is section four, with its sustained psalter, the upper harmonics of the spectrum being ma-

nipulated spatially, the resonant lower frequencies seeming to lie stationary in the center. The complex section seven has the greatest diversity within—loud areas of complex timbre to soft pure tones, rhythmical to non-rhythmical areas with location modulation occurring on all axes.

During the fourteen year gestation-period, Gordon was working with the technical aspects of the piece, processing the sound sources to achieve the effects he had in mind and building the equipment with which to do so. The completion of *Pontpoint* was spurred by a commission from Jann MacCauley of the Cirque Dance Company in Portland, Oregon, for a premiere on 14 March 1980.

"... del premier libro de los desaparecidos ..." (1982)

This most recent work (The First Book of the Disappeareds) is for solo clavichord or harpsichord with electronic processing. The electronics are essentially the same cybersonic circuitry used in many of Gordon's earlier works but utilize current technology to achieve the same interactive logic. This equipment is now commercially available, making performances by others possible, which is Gordon's intent. The electronics involved in the piece modify the keyboard sounds and pre-recorded sounds according to information being received from the keyboard. The stored sounds consist of a wide variety of materials, substantially acoustical in origin.

The music itself is attached to but not quoting directly from popular and folkloric music, as demonstrated by references to the classical Argentine tango, West African high life music and other cultural sources. The musical material is stated and develops by the process of disappearing, either by mutating into something else or, more commonly, by simply disappearing. This unique idea of development is reflected in the naming of the piece.

Landscape with Pauline Oliveros

"I can feel myself changing"

Pauline, does Rose Mountain Slow Runner *have any ideas that you would like to tell us about?*

I'm glad you asked me that.

What is the musical idea behind Rose Mountain Slow Runner?

Well, I haven't been working with musical ideas for a while. I've been working on my mode of consciousness. And the result of the mode is the music. So, I have a task to do. And in the case of *Rose Mountain Slow Runner*, I have to give up my intentions as far as the sounds are concerned. As I am listening, if an intention arises, I have to wait until I have no intention and then the sound changes from there. It's involuntary.

Does the initiation of the sound that you make come as a result of no intention?

I have to reach a state of no intention. I have to begin after the beginning.

How do you attempt to reach that state of consciousness? Is that intentional or is it based on some other mode?

To reach that mode of consciousness is intentional, so my intention is directed toward the task.

Your will is directed toward reaching the state of consciousness out of which the music will come involuntarily?

Yes.

Did you come upon that state of consciousness as part of your daily life and discover that it produced music, or did you search for it?

It's an ongoing search. But it comes from a task that I gave myself about 1957 as a result of listening to recorded environments where I would put a microphone in my window and record for the length of the tape and then play it back. And I realized that I wasn't listening to very much. I then gave myself the task of listening to everything all of the time, and reminding myself when I wasn't listening. So, as I became more and more aware of listening, and bringing myself to listen, I began to listen more inwardly as well as outwardly, so that there was an expansion in both directions. I realized very slowly over a long period of time that the activity of framing a performance and the intentions that accumulate around that activity produce a certain anxious kind of mode, and I became bothered by that. I became bothered by the flurry of activity and how it tends to mask so many things. For instance, all the sounds that we're hearing right now, the creaking and the fire snapping and so on. I feel that that's a part of the relationship that I have to work with all of the time. I

gradually realized that I had to learn to bring that kind of listening into the kind of music I was making. And that intention produced a particular kind of feeling.

We seem to be governed by the morality of not wanting that feeling of anxiety that you mentioned. It seems to me that that might be the reason we recognize you as an artist: because you make that feeling clear to us. There must be a morality producing the antipathy toward that feeling that you don't find in composers of, say, a hundred years ago. Do you know what I mean? It seems like that in the music of a hundred years ago you get the idea that music very often glorifies those anxieties.

Well, I think I would put it another way, and that is that the composer of a hundred years ago had a clear function.

To be anxious.

Not to be anxious, but the function of his work was clear. For instance, Bach writing for the church. Certainly there was anxiety coming out of the performance, but the function of the music was clear.

I was suggesting that people must have valued that anxiety because you hear the anxiety in the music, and you sense that that must have been a valuable sort of feeling. There must have been a value to the feeling of anxiety in order to have it so much in the news. So if your music is about a state of mind, or a place in your consciousness where there's no anxiety, you'd only be at home in this time, don't you think?

I'm not sure I can agree with the idea that you've developed about anxiety. I think that anxiety comes through in certain kinds of music.

It's not in your music.

No, I know you didn't mean that. But I'm projecting it in other music. What we're talking about has to do with the kind of performance anxiety that I had. Also I think there was an anxious kind of movement in the music that I wrote at the end of the fifties, and all through the sixties there was a sort of a dissolving and a working with that kind of anxiety. So there are two things for me, and one is the move into this meditative work and the idea of changing my own consciousness as I work. The second has been the theatrical development, where I work with materials other than just sound. It's a disorientation of the audience's role with the music, and a drawing away of attention from simply soundings—a drawing of attention into the situation and the boundaries of the situation.

Do you feel that this situation that we're in right now is anxious? Was it achieved in a way of meditation, and of non-intention?

Certainly our particular interaction has a certain amount of premeditation, but there were no guarantees about how we would talk, or what we would talk about. So that there was an establishment of a frame, but I would rather not know what questions would come up, for instance.

I couldn't have imagined talking other than the way we're talking now.

I would rather not know in order to find out what is in myself and what would

come forth at this point. And that's very much related, I think, to the way that I'm working. I'm trying to find out what is there, rather than trying to guarantee some particular thing in advance.

Why did you choose your voice, and how is it involved in the area of sounds that you work with?

Because it's very direct; it's a direct connection with the inner world. This is where I can manifest what is occurring within myself without a translation from myself to an instrument. Although, in *Rose Mountain Slow Runner*, I'm using my accordion, which has been part of my life for over thirty years.

The accordion seems like part of you.

It has become that. But a lot of the work that I've been doing has been involved with just vocal sounds—the *Sonic Meditations*, and so on.

I know. I loved the welcoming piece that you did here at Mills. Two years ago I think?

The *Greeting Meditation*.

I thought of it as a welcoming.

Yes, it is a welcoming.

It's such a beautiful effect when you walk into the room and you hear the sound that the people are making. You think that you're just walking in synchronously with the people who are making this beautiful sound. It's as if you found the sound, you know? If everybody who walks into the room has exactly the same experience, you know that everybody sitting there is your friend in that experience.

Right.

It's so nice.

It's interesting to see the different things taking place. And it does work that way. Exactly that way. The *Greeting Meditation* is a key meditation because I wanted to find a way to change the atmosphere immediately. To set up a question immediately, rather than a person coming in and just normally going and finding a seat, sitting down, and waiting for everything to begin. How do you do that without directing the person? And this was the way to do it. I had a wonderful time recently when I went to Pennsylvania, because I did a translation of the *Greeting Meditation*. Rather than focusing on a tone and then singing as people came in, which is what I did at Mills, I decided to wave. So I was sitting on stage and I waved to every person that came in. The reactions were wonderful.

You waved alone?

Yes, this was my solo translation.

Did the audience get involved at all? Did they do anything strange, like looking around?

Yes, looking around, trying to figure it out.

Oh, that's exactly another version of the piece.

Why did you choose the name Rose Mountain Slow Runner?

Rose Mountain Slow Runner. That's a long story.

I want to hear it.

You want to hear it?

Every word of it.

You want to hear every word of the story?

I don't want you to spare me anything. Don't spare me one iota. Okay, let's go.

Well, first of all . . .

I'm happy. I am, I'm happy. You know, you always say, oh well, when people do music they get happy. I'm happy.

So you're doing music?

I must be, I'm happy. That's what they've always told me. Go ahead.

Okay. The song is non-verbal. That's very important as far as this particular work is concerned; somehow words are too specific, but sounds are more direct. Again, sounds simply don't have the associations that words would set up. So if I'm successful in my task of giving up intentions, whatever emotional states I might be experiencing will come through in those sounds. The song may change. It may change during the course of the song, and something may arise, or it may change from time to time. The song came as a result of various experiences that I needed to work with, and it was a way of channeling feeling, and channeling it directly. *Rose Mountain* is the name of a friend and *Slow Runner* is me. But that's only part of it. *Rose Mountain,* of course, is a beautiful image; *Slow Runner* is ambiguous because there are runner roses. So the image then can build and it will depend on your own reaction to it. But the title itself is a meditation. The image for me is the mountain which is a spiral of roses, slowly spiraling.

It's funny. We're so much alike. I've always thought of myself as a slow runner too.

When I was a teenager I had a red corduroy hat and on the hat band it said "I'm slow but sure."

You gave me an amazing idea. When you were talking about the unarticulated sounds of the music being direct and articulated ones being indirect, it somehow suggested to me that that's the contrast of relative directness between, say smelling and tasting, where smelling is so much more direct than tasting. There might be bands of feeling in our head structure, and anything in the band of the ears and nose would seem to be more direct and anything in the band of the mouth would seem to be indirect.

Well, of course, I spend most of the time trying to get out of my head.

What is your relationship to other people's music now? Do you listen to music by other people?

It certainly isn't systematic. It comes from proximity. I'm not interested in trading tapes very much. I find that so much of the work involves the real presence of the person, and you don't get that in a document. So it's important for me to be wherever the activity is taking place. And part of the reason that you told me that

you're doing this documentary is because we've missed so much of each other's work. We hear the legendary commentary and we hear descriptions—which are almost more valuable than a recorded document.

I agree.

The transmission of the feeling of the event. So, that's one way that I keep in touch with what other people are doing—through the network, that grapevine.

Have you recently considered the idea of trying to produce a recording?

Well, I've never really tried to push my work, or to push my work through recordings, and as you know I have several recordings. The only ones which I'm really satisfied with are the two which are of electronic pieces. The recording medium is a fairly good way of documenting that, but those were from the middle sixties, and the work that I've done since has been less and less suitable for recording. It takes place over space, and it's a theatrical activity that requires presence. It's very difficult, as you are well aware, to get a truly good document. And also, realizing that that's exactly what it is: a document, not the event. I'm not particularly interested or worried about preserving my work; I'm interested in doing it. I'm interested in the event that we're involved in and how it can change me or how I can learn about myself from it. I'm interested, Bob, that you mentioned our likeness. I remember hearing about your work, oh, ten years ago or so, and I would listen to the titles of your pieces like *Public Opinion Descends Upon the Demonstrators*, or *The Wolfman*. You were one of the only people I knew who was using images for titles, and images for pieces. I felt that was a kindred sort of link between us.

I've always felt that very strongly. Do you think there's any sort of state of mind or emotional state that you and the other composers in "Music with Roots in the Aether" have in common? For instance, if you thought about it you might say that your music had for a while concerned itself with "sadness," or something that had a kind of verbal equivalent. Does that enter into your considerations about your music at all?

It might enter in after the fact. But mainly I was always concerned about what I was doing, and the way that I was doing it. So I think that even though I wasn't involved with what I'm now calling meditation, I was always interested in the process that I was going through. It would come through the task somehow. I never set out to make a sad piece, although it might become that. Or it might be many different things which are ambiguous.

But when you look at the body of your music, which inevitably you have to do at some point, does it occur to you that it represents something that you can describe and that you could want to change? Terry Riley says that he wants his music to be only positive; he wants it to give only good feelings. That reminds me that if your music came from some attitude that was, say "sad," and you looked at your music in retrospect, you might be constantly trying to leave that. Do you ever identify your music in that way?

Okay, that's interesting. Going back to *Rose Mountain Slow Runner* . . . certainly I would resonate with Terry in his feeling of wanting to be positive. But, again, I'm approaching it through my attitude and the task. I've spoken about the emotional states that can come through the task, so again, it's work on myself, with the idea that the results would be positive.

In the form of improvement or something. I thought you must feel that because you project the appearance of welcoming change.

Well, yes, I welcome change, although I find it very painful.

Like grief.

But we agree to do these things.

Do you have any more questions for me, Bob?

I was wondering if you could identify the source of what you're feeling right now.

You're talking about the character that's developing?

I didn't even mean to refer to that. I was asking whether you could describe your need to do what you are doing right now, because that need would be so universal. Do you understand a little bit what I mean? [This talk is taking place during a performance of Unnatural Acts Between Consenting Adults*: a collaboration with Carol Vencius. Carol is "changing" Pauline through the use of make-up, wig and costume from one image to a very different one.]*

No, I think you'd have to explain it to me.

Well, if there was some way that we could have a video tape of the daily life of the Aztecs or a video tape of the daily life of any culture, the video tape would always show the same thing, wouldn't it? It would show the people changing themselves in some way. And I was wondering if you could explain that feeling. Why do we do that?

Why do we make these changes? My immediate response is, to learn more, to move, and to feel the movement.

In exactly the situation that you're in now, do you feel somehow lighter than you felt before?

Lighter?

Lighter, yes, or more substantial, or less. Do you know what I mean?

I'm in an interview situation, operations are being performed, and a performance is going on outside of the talk we're engaged in. And I can feel myself changing; I can feel myself changing inside as we talk. As the interview expands I remember how we began and I feel the change that has occurred with you—your initial discomfort of finding how to center on the interview, on the talk. A lot of my early work was involved with improvisation. And it was involved in putting myself into contexts or finding ways to make sounds that I didn't understand or know how to do. I found that it was having to set conditions of such a nature that I would have to deal with what moved me the most, what changed me the most. Now I might choose a very uncomfortable situation in order to effect a change. Our tendency is

to seek out more comfortable situations and activities, but I've never been satisfied with my work if I find myself becoming too comfortable.

If you were asked to give advice to young artists these days, could you give it?

Advice to the young artist? I think that I would find that very uncomfortable. The only thing that I could do would be to reveal my own experience. But then, I didn't recognize good advice until after I'd gone beyond it.

Yes, I understand.

You look back and recognize that you had good advice and you had bad advice.

Are you ever asked for advice in that sense?

I think that it sometimes happens directly, and sometimes indirectly. People want to look at you and find out what you're doing, so probably your behavior is the advice.

It seems to me from the way you describe your music of a while ago, that there must have been a time when you weren't thinking about music the way you do when you describe Rose Mountain Slow Runner. *There must have been a time of discovery when you replaced the older process with the newer one. Was that a very sudden experience or is it still ambiguous to you?*

It was a slow process. There was a slow evolutionary kind of process that took place, and I was very conscious of the crossing point of the change. I can characterize it by saying that earlier, through the sixties and up to the end of the sixties, I was involved in improvisatory works and trying to find ways so that I would not know how to make sounds. That was a stimulus. But at the same time I found myself making intentional sounds. I was intending to make a certain kind of music. However, I gradually became more and more interested in the process of listening, and there came a time when I was no longer improvising, but I was attending to the task. I call it meditation because I was dwelling and staying with a particular thing, and, as I say, trying to lose my intentions in order to find a different mode. So there was a point where I realized what was taking place. And it was different territory, and the feelings that I had in making the music and in doing the meditations were different. I think the feelings were more related to Terry's idea and the feeling that you mentioned about the *Greeting Meditation*.

Can you see something in yourself that's historical—some overwhelming force that's been with you for a long time? I mean, we're taught that those forces exist, and that people might live their whole life struggling against economic problems or a despotic situation or something like that. We have heroes who have spent their whole life working with an idea. I was wondering if there is an idea like that in your life.

Yes, I think so, and it's shown up in my work as a dualism. Very often the theater pieces that I've done have been quite bizarre, with mixed feelings in the theatrics and then a change of mood into some kind of disorientation. Again, a crossing point.

Within one piece there are both things?

Right, both things. And within myself there's the environmental pull. You men-

tioned struggle: the way I want to be as opposed to the way the environment or social environment intends for me to be. I think that trying to keep myself centered to meet that has been a sort of overwhelming force, and that it's representative of what I've been saying about the improvisations, the situations, and the tasks.

I'm interested in your statements about the improvisations because I didn't see any of them. I had heard about them, but I didn't know how they fit in with what you were doing.

Well, all the time that I was working with electronic music, the whole task for me was to find a way that I could improvise in a continuity. And when I was working there were no synthesizers. So I was working with equipment which wasn't really designed for playing in the way that I've been talking about or wanted to do. I had to find a way to play the studio, which was the old classical studio. So I found ways of setting up very unstable electronic situations to work with in the studio, which again would give me the condition of having to understand as I went along, or not understand what to do.

I understand.

You understand?

Just now—just this second.

Just now? Have you gotten the message?

I just got it.

You got the message.

Shedding another Skin

by Margaret Ahrens

The highly personal, emotional, and psychological nature of Pauline Oliveros' music is an assimilation of three periods of experimentation: 1951–62, coloristic exploration; 1962–70, electronic/multimedia work, centering around the atmosphere of the San Francisco Tape Music Center; 1970 until the present, metaphysical development. To understand this evolution it is necessary to understand her music's historical growth, and to recognize those characteristics which have always been present.

From 1951 to 1962: Coloristic Exploration

"Most of my work is rooted in improvisation and primary process imagery. As a beginning composer, I searched laboriously with the aid of a piano for the sounds I heard. This was a kind of slowed-down improvisation. As I heard the pitches I wanted, my mind constantly formed images of the instrumental colors I wanted. From the beginning, sound quality has been a primary concern." [All indicated quotes are Pauline's direct words from conversations, her essays, or her scores.]

In 1951, Pauline began at the University of Houston studying composition with Paul Koepke. In 1952 she moved to San Francisco and began formal study with Robert Erickson. Erickson influenced her work in specific ways.

> He reinforced my interest in sound quality, he encouraged improvisation through pieces, rather than rationalization, and he introduced me to the idea of an organic rhythm which shifts, expands, contracts, and is not periodic in a metrical sense.

The pieces from this period are primarily instrumental and experiment with instrumental color and rhythmic diversity. They use an extension of pointillistic techniques. She extended the possibilities of pointillism to produce the sounds she heard, showing an early interest in the psychological properties inherent in a particular sound.

In 1961 Pauline received her first critical attention from a performance of her *Variations for Sextet*, which won the Pacifica Foundation National Prize. In 1962 she won international recognition by winning a prize for the Best Foreign Work awarded by the Gaudeamus Foundation (Bilthoven, Holland) for *Sound Patterns*, a work for mixed chorus. *Sound Patterns* had no text and used abstract vocal sounds producing an almost electronic or sometimes full-orchestra sound.

> My central concerns for time structure and tone quality were the same, however I abandoned precise control of pitch for the first time in order to gain the possibility of complex clusters of sound which would have been undoubtedly too difficult for a chorus to reproduce from notation of exact pitch. *Sound Patterns* was one of the first compositions to explore vocal sounds in this way by a twentieth-century composer.

The use of improvisation developed throughout Pauline's work. She describes it:

> Improvising for me meant manipulating sound materials without a preconceived system, relying on the presence of internal nonconscious organization, then composing by reflecting and then extracting from an emergent sonic vocabulary. It was important to me to try and by-pass familiar patterns from my training, so as to find new ground. In order to do this I often would put myself into an unfamiliar situation, such as working with instruments I did not know. In this way my improvisation would be an exploration, a discovery of how to make sounds rather than what sounds to make.

With her interest in pushing sound beyond its normally assumed possibility, and of producing sound acoustically which many listeners mistook for being produced electronically, Pauline's next period of exploration was a natural progression.

From 1962 to 1970: Electronic/Multimedia Experimentation

In 1961 Pauline began an exploration with Morton Subotnick and Ramon Sender which grew into the San Francisco Tape Music Center. This was the first evidence of Pauline's desire, which is so apparent in her later work, to form a social bond to develop music with others. In a time before voltage-controlled synthesizers and computer music systems were available, this group formed an alliance to explore the potential of electronic media and pushed the situation to its limits through imaginative improvisation and theatrical events. Pauline describes the Tape Music Center thus:

> This collaborative effort provided us and other, younger composers with the only accessible electronic music studio in the area at that time. We worked separately and together, influencing and reinforcing each other's interest in improvisation and theatrical materials. Our activities included group improvisation, a monthly concert series and a meeting place for discussion with the many composers and artists—local, national, and international—who came to visit and work at the Tape Music Center.

Pauline's tapes, theatre pieces, and multimedia works from this period are extremely diverse. There are pieces written for mimes, actors, and dancers. There are pieces integrating sculpture, dance, and music. Pieces for tape alone, or tapes with live performance. There is use of amplification of acoustical/natural sound, often also mixed with a modification of itself. Tape delay techniques are developed to ultimate complexity. Film is used. And a group of very witty and theatrical pieces were written for solo virtuoso performers. Pauline describes three pieces most characteristic of this period:

Although I continued to improvise, perform, and compose using acoustical instruments and voices, my interest had shifted to electronic and mixed media of all categories.

Three of the most representative works from this period are:

Pieces of Eight (dedicated to Long John Silver), a theater piece for wind octet, objects, and tape, which contains the seeds of many of my later theater pieces. A *San Francisco Examiner* review by Arthur Bloomfield provided this description: "A bust of Beethoven perched on a piano as Pauline Oliveros' *Pieces of Eight* unwound amidst a concatenation of alarm clocks, cuckoo clock, cash register, and assorted glissandos, blurps, and bellows from an ensemble of eight performers who looked rather more plausible than they sounded. The bust had a wretched expression on its face, as if Ludwig had just heard one of his symphonies played upside down, backwards, or maybe at sixty-two rpm. And we doubt if he enjoyed being paraded up and down the aisles, eyes blinking red, while feverish "ushers" rattled collection plates and organ music filled the hall."

Theater Piece for Trombone Player (for garden hose instruments constructed by Elizabeth Harris, lighting, and tape). The sonic materials of this piece are an arrangement of an improvised vocabulary developed in collaboration with Stuart Dempster, the performer. The vocabulary is arranged and mixed on tape in a sequence by the composer. Stuart Dempster has specific instructions for improvising with tape . . . My practical habit of writing for friends has caused many pieces to be exclusively the characteristics of one particular person. This piece is the first of a series dealing with the virtuoso performer. It includes not only the personal sonic vocabulary of the performer but also the personal theatrical vocabulary of the performer. As such the piece is not available to other performers.

I of IV, a two-channel, purely electronic piece which is a solo studio improvisation in real time. In this work I proceeded to elaborate a strong mental sonic image. First I connected a special configuration of electronic equipment which would produce my idea. There was a climax in this particular improvisation of a feeling which had long been developing in my work: that I was a medium or a channel through which I observed the emerging improvisation. There is a careful continuation in this piece of the idea mentioned by Frankenstein (critic, *San Francisco Chronicle*) in "Stimulating Sounds Too New To Be Named": that is that "the past becomes the substance and subject of improvisation," in this case through various tape delay techniques.

In 1965 the San Francisco Tape Center received a Rockefeller grant to continue its work. The next year the Center was moved to Mills College where Pauline became director. In 1967 she accepted a position on the faculty at the University of California, San Diego, which she held until 1981. These changing environments let to a more pronounced interest in using and developing theatrical and visual materials in her work. At this time more pieces were written for virtuoso performers: *Night Jar* for viola d'amore (for Jacob Glick); *Double Basses at Twenty Paces* for two bass players, referee/conductor, seconds, and tape (for Bertram Turetzky); *The Wheel of Fortune* for clarinet (for William O. Smith); and *Aeolian Partitions* for flute, clarinet, violin, cello and piano (for the Aeolian Players).

> It is common to all these works that the musicians' actions as performers and the visual elements are as important as the sounds produced. My concern with stage behavior and its unusual nature tends to disorient audiences, and is intended to bring about in varying degrees a new understanding of how to listen. It is also intended to disorient the performer and break stereotyped approaches to performance. At the same time there is a desire for the individual personality of the performer to come through and take a vital role in the music. Wayne Johnson of *The Seattle Times* writes, of William O. Smith's performance of *The Wheel of Fortune*: "The piece is fun and funny, but it's more than an extended gag. It adds up to a fascinating, entertaining portrait of a man who expresses himself primarily through his clarinet but whose expression and need for expression are shaped by many nonmusical influences."

This period of Pauline's work was typified by:

— the need to form a group situation for mutual growth

The San Francisco Tape Center became the very heart of the musical experimentation in the Bay Area. Because of its almost "communal" style of organization it built a supportive environment for all the experimental artists of the community, and became a focal point where other artists could meet as well. Not only did the structure provide a time and place for performers/composers to do their work, but it served as a reinforcing network for all involved. It created an energy, an audience, and brought together other artists who influenced one another. No artist works in a vacuum, and the Center really opened a lot of possibilities for experimentation. The group energy, the mutuality of a shared goal, is one of the primary factors which developed in this stage of Pauline's work.

— the use of improvisation

The improvisatory nature of her work was always strong, and it developed highly throughout the period. All of the theater pieces and the "personality," virtuoso pieces "work" because of the freedom that each performer elaborates within the performance space. The use of improvisation allowed a much more exploratory nature to evolve and change the expression of her work throughout this stage. Improvisation grew into experimentation with meditation.

— the desire to continue to musically realize strong mental images

Pauline used models to develop sonic ideas. In her earlier work, she always seemed to have a "mental picture" of the sound desired. In this period she began using the personality of performers to control compositional decisions of both musical and theatrical ideas. She also made rather political statements, or theatrical, often whimsical juxtapositions of events, any of which might have seemed quite serious alone but which produced a rather humorous effect when several elements were mixed together. Humor was used in a theatrical way to disorient both performers' and audi-

ences' perception of their roles. To do this, "the unarticulated elements which have become part of the background in traditional music became the foreground of (her) theatre pieces."

– the influence of equipment development and the technological advances in the sixties changed Pauline's interest to electronics and media in general.

Equipment development along with the accompanying philosophical changes that were then happening in all the arts deepened Pauline's interest in multimedia possibilities. This use of multimedia led to a desire to integrate different types of energy to define an environment and also to become aware of the many factors determining the types of stimuli and energy interaction within an environment. This occupation with integration seemed important in more than physical sense, and led to her interest in exploring that principle emotionally and psychically.

– the idea of "becoming a medium through which (she) observed an emerging improvisation."

This idea began to be formalized throughout this stage of work and became the transition process from formal presentations of pieces into the idea of "becoming one with the music produced." This evolution became a main focal point which led into the more metaphysical aspects of her next compositional experimentation.

> With unfamiliar instruments or sound sources I could not rely on skills and the associated patterns. Instead I tuned to some continuity within myself which led my improvising nonconsciously. I liked the sonic results of this mode no matter what materials I was using. I found myself in some kind of musical borderland where guidelines blurred and the ear led. Rather than thinking about what to do with sounds, I was listening to what sounds did. I became interested in listening to one sound for a long time, until its tendency seemed to change, or my intention would shift, or disappear altogether. I became tuned to myriad changes in the quality of sound and to my own psychophysical dynamics. The work became increasingly meditative.

1970 to the present—Metaphysical Development

After the energy of the electronic/multimedia period of work completed itself, Pauline began working in a style which can best be called self-exploration. She seemed to move beyond the desire to experiment with technology to the desire to understand her own processes and to develop self awareness to a very fine degree. This curiosity changed the entire tone of her work, although it happened in a very evolutionary manner. Her work became much more internalized, seeking an inward change rather than an audience recognition, more meditative, more personally defined and directed and much more concerned with energy transformations as a whole rather than primarily related to sound. Sound became a means of exploring energy integration on many levels, rather than an end in itself.

In 1970 Pauline organized the [Q] ensemble to continue exploring the psychic energy she had been investigating in sonic material. The group worked very intimately for several years

> on disciplined states of meditation and ideas for expanding the possibilities of sonic mediation. The group was purposely all female in order to maintain a common, stable vibration within itself to explore the potentials of concentrated female creative activity, something which has never been fully explored or realized. The group sonic mediations provide a path for constant rediscovery of each person's potentials in herself and in her instrument. By meditating together the members are able to reinforce each other's psychic energy and sonic explorations and discoveries.

The [Q] ensemble began as an exploratory society dedicated to both individual and group development. It derived its energy from group effort and was concentrating on producing an environment for the well-being of all present. It sought a more thorough recognition of the elements of composing an environment, an integration with that environment by an introspective internalization of those elements, and the discovery of how to alter or preserve or more fully develop the environment once one has allowed herself to fully perceive and participate within it.

I remember the time I was able to participate in an evening of Pauline leading people in her *Sonic Meditations*. I distinctly felt that she was using the evening as a vehicle to allow all those present to create what I called "a next bond" beyond being single personalities. The meditations seemed to have evolved in a manner to develop trust among the participants and the desire to integrate each one's separate psychic/emotional energy to create something larger than the mere sum of all present. The energy was a blend of sources, which once combined, changed its identity and was recycled to each individual. This seemed to change the energy each "sent out" again, later receiving again, until a rather homogeneous nature seemed to preside over the environment.

That evening fanned the fire of my own developing interest in the factors which determine the power of vocal music. When the [Q] ensemble was first formed, instruments were used along with vocal sounds to develop the meditations. However as the group progressed, the instruments were abandoned in favor of the development of the voices of all the participants. I couldn't help wondering why Pauline, who had been motivated for a large portion of her compositional life by a budding electronic technology, should suddenly focus exclusively on the primary instrument, the voice.

The human voice provides more information than can possibly be consciously processed by an observer. It describes personality traits in general as well as showing the specific state of one's emotions. It greatly affects one's ability to emotionally perceive and/or empathize with another. One's speech patterns can often alter, or are indicative of, his or her thinking patterns. Negative characteristics, such as speech impediments, influence one's ability to interact with others. A voice's inter-

esting qualities, beauty, or lack of either, control the readiness of others to listen, showing that the medium itself affects the impact of the message.

When vocal sound is used in a musical application, the information produced is the most gut-level that it can be. It is the most direct instrument possible, providing the least possible filtering of a musical idea. And because such music is so highly personal and so indicative of a musician's whole being, it is natural that anyone acutely aware of vocal sound would develop the desire to investigate her intuitive nature, and want to explore the four interworking parts of her personality.

Every human being is an integration of four natures, the spiritual, emotional, intellectual and physical. None of these characteristics can be totally divorced from the others, and none can function independently. To ignore one of these aspects of personality creates an imbalance which allows a less efficient or less desirable state to exist. As Pauline became more aware and complete within her own sense of integration, she wanted to use her music to develop internal growth—physically and emotionally.

Much of the experimentation in this phase of work reflects an interest in how a process evolves. The sound produced is a part of a larger process and is not the primary goal of meditation. The experimentation has developed her desire to completely recognize all perceivable factors of an environmental system and to be able to use and interact with that energy.

With the developing interest of interaction and understanding of an energy system, the formal sense of performance began to fade from Pauline's work. All people present at an evening of meditation pieces are participants, leaving no distinction between performers and audience. This appears to be a logical progression within her work, for once one has discovered how energy is produced within a system, it would be reactionary to then fragment it, or not to use its full implementation. The integration of performers and audience is a social commitment which allows the growth and understanding of a process for all involved. It is a model of integration which is similar to the personality integration of the physical, intellectual, emotional and spiritual. It is an attempt to create "the next bond" beyond the integrity of a single personality.

After the *Sonic Meditations* had been developed through the disciplined approach of the [Q] ensemble, Pauline wrote two sister pieces which explore the juxtaposition of several simultaneous meditations, *Crow* and *Crow II*. Within *Crow II* several different types of meditators continue their meditations independently, using different media as vehicles for their performance. This gives an observer the feeling of being a part of a multimedia meditation. Seated in a mandala:

> The Crow Poet dreams the poetry, and symbolizes the group's focal point of energy. She is like an old grandmother who passes on the tribal ceremonies from generation to generation. Although she is not too specifically directed to make any sound, her imagery is extremely important because she represents wisdom accumulated from the past.

She is illuminated by a lighting system which slowly cycles the meditation symbols: The Mirror Meditation people represent the dance element.

The Single Stroke Rollers, the Energy Changer Dijeridooers, and Telepathic Improvisers provide the music during their mediations. The Energy Changer and Dijeridooers have almost a dual function because their meditations are based on listening to other sounds within the environment and creating sound to complement the environment or make needed changes. In this sense both types of meditators also serve a director function.

The Heyokas are the comic theatre and also the children who test the environment to determine whether it can remain valid. Just as children examine and accept or reject everything of the tradition they are born in, the Heyokas through imaginative play prove whether the different meditations have the substance to remain during the distractions the Heyokas impose on them.

The Crow Totem represents the sculpture element and also serves as a symbol of tribe unity. It is the totem which appears to distract the Heyokas after their mission is done. It is the symbol which represents what the "tribe" reveres, and this feeling is strong enough to ward off interference. It is not true that the work of the Heyoka is not necessary, but the energy which is well enough founded will be able to sustain the attack and survive it.

The Crow Family and Friends are symbolic of the tribal energy which uses the ceremony to fulfill its needs.

Although not asking direct audience participation, as in the Sonic Meditations, Crow II is used as the North American Indians used ceremonies to centralize a tribe's energy and to gain a group unity. This piece is also more formal than the meditations done by the [Q] ensemble because of its more tribal rather than ritualistic nature. Within a tribe each member can have a specialized function and all combine to produce the societal whole. Crow II uses the meditative skills and functions of the performers to educate "the extended Crow family" concerning the uses of the energy developed through meditation.

An Eastern influence also seems present in all of Pauline's work in this stage, in addition to the previously mentioned "tribal" nature, emphasized by these characteristics:

- her need to "empty out her past musical ideas," showing a Zen nature;
- the use of meditation with its interest in involving bodily processes as a function of breath;
- the combining of philosophical inquiry with music (a considering of psychological factors inherent in sound and life in general) within the meditational techniques;
- the use of sound as a healing process, developed through skillful use of concentrating it in various focal points of the body (shakra-style) or integrating its power internally;

– the emotive energy sought through the meditational practices is relaxed, striving for a smooth, continual nature;
– the ritualistic nature of the grouping of meditators. The [Q] ensemble chose to make a group commitment for a very long period of time, which is similar to studying with a guru in monk-like obedience, which allows a highly disciplined personal, metaphysical, and physical growth.

The metaphysical development of Pauline's work can be typified by:

– the predominance of vocal music;
– group development in the presentation of the music;
– Eastern philosophical concepts as well as physical disciplines;
– the attempt to develop total personality integration, along with developing the next bond beyond it;
– the desire to integrate and understand all the energy within an environment;
– the use of ceremonial or ritual forms, which develop a more "tribal" sense of theatre;
– the loss of "observing" music, leading to the phenomenon of "becoming one with it," by all present producing it, and interacting with it;
– the desire to produce a more refreshed/relaxed system for all participating—a more complete and elongated energy;
– the desire to evoke internal, personal change, rather than the desire to develop "an interesting sound" or novel performance technique;
– the use of improvisation to develop music from a particular technique, such as meditation, but "allowing" a process to form itself without manipulation, by freeing "involuntary" energy:

> Instead of actively intending to make music by improvising, the kind of tasks imposed by a particular meditation allowed the music to occur from a receptive or intuitive mode of consciousness.

And all of the above led to the need to develop music beyond a multimedia approach within the arts, through interdisciplinary research.

The use of her meditational music has led Pauline into a variety of new research. She has become intensely involved in the psychological applications in sound; in group sensitivity and developmental possibilities; the history and development of tribal ceremonies as a means of meeting societal needs; spiritual and intuitive means of directing human thought and behavior (that is, telepathy, extrasensory perception, yoga disciplines, et cetera); the study of energy transformations within an environment (process development); and the integration, utilization, and interaction of all processes and energy available to an individual. Her research in bio feedback

techniques, the desire to work with others in a great variety of disciplines (sociology, psychology, medical research, physics, et cetera), and her acute curiosity will undoubtedly lead her into an even more generalized approach to and knowledge of the study of energy and people in the next phase of her work.

Throughout Pauline's development there have always been certain elements present in her work.

She has always been developing a sense of improvisation. Through this technique she's been striving to elaborate a mental possibility for a sound. By giving performers specified freedom, an idea could be developed naturally without being destroyed by its realization process. Some sounds would be impossible to encode either in words or graphically on some type of score. By describing a situation and "allowing" it to proceed within a certain environment, there is perhaps not only a possibility of getting close to the originally intended sound, but also the possibility of discovering something that is entirely unforeseen and impossible to find except through happy chance. A system once formulated and allowed to proceed always produces more than could have been anticipated. Pauline's use of improvisation has been increasing throughout her work. The earliest pieces still use standard notation and are quite specific as to intent. But from *Sound Patterns* on, she's tried to completely develop improvisation. All the electronic/mixed media pieces had an intent, but that was always elaborated and completed by the moods of the performers and the environment for the pieces. Once she made the decision to move beyond improvisation to meditation, she was really just making the last logical step. The goal of her meditations is to be non goal-oriented, to lose preconceptions, to "allow" whatever possibilities are inherent in a system to exist as their natures exist. It is the final step to discovering something within a system, and the allowing of something which could not possibly be surmised or foretold to become a reality.

She has always used theatrical elements to develop musical ideas, create special effects, or to determine an environment. I think all music is theater translated into sound. However, Pauline has used many visual elements theatrically in her work. Most of her multimedia works, especially the virtuoso pieces, (*Theater Piece for Trombone*, *Night Jar*, et cetera) call for the specific character of the performer to "act out" events, while the other pieces more subtly perform some visual nuance to help define the sound. Her meditation pieces draw on probably the most basic kind of theater, the ceremonial or tribal integration of relationships. While some pieces are more overt (the Indian ceremonial quality of *Crow II* is very direct), Pauline knows how to elicit personal response while singing a solo meditation unaware of any observer. I think she is a master at eliciting the maximum emotional response from a very simple visual cue.

She has always been seeking "a sound she heard" that was an inner reality. Sound imagery has been a paramount concern. It is as if the theatrically visual or tactilely spatial work has been sculpted from the sound image in her mind.

Since her works develop through meditation, she has been interested in "allowing" music to happen rather than crafting it through her will and intent. This creates the possibility of "becoming the sound sculpture" itself, a new unification with the image. This led to a more intense desire to develop the four remaining characteristics, which while always present, have become more finely developed in her work: the desire to understand the psychological properties inherent in a particular sound; the personal need of developing internal material and for the recycling of it again within oneself; the intense interest in how a process defines a composition; and the interest in interpersonal relationships.

Although Pauline's music has been highly improvisatory, she has always been interested in developing the psychological effect of a specific sound. In her first works of coloristic exploration she visually implied a "sculpted sound" portrayed through space and color. The theatrical pieces created humorous or emotional effects. But it is her meditative music, although produced without manipulative motive, which deals most directly with the psychological implications of sound. She now uses sound to attain a more complete consciousness and self-healing. Because the voice itself is so indicative of an individual's psychological and emotional makeup, she feels that the reprocessing of those sounds created in the meditations produce resonances which allow energy to flow through the body to heal, soothe, and refresh. This leads directly to the development of a personal need to use sound created from internal material, and the recycling of it.

Although all her earlier work was based on mental sound imagery, her meditation work is again the most developed example. The goal of her meditations developed from a need to "alter her consciousness and to clean herself out." The meditations produce sound through non-manipulatory means, for the source is from within oneself, but is not shaped by the will. Once the sound is aural, the ear/brain/emotion chain reintegrates the energy and uses it again internally. Human beings are a closed loop. We can't send out something without being re-affected by that material. We never "lose" anything we are.

Pauline has always worked from a model, a process. Whether it was a sound image, a performer's personality, or a ritual, such as the meditation pieces, there has always been some point of departure which has served to define her pieces. This has allowed an organic evolution of her ideas; one interest has always dovetailed into a new perspective. I sense that this is a fundamental of her nature. By meticulous examination of a specific goal she manages to build very carefully, realizing its full potential, and then moves to the next logical progression. Being aware of minute detail, she's able to completely exhaust an idea, microscopically.

> Then it's time to clear the register and prepare for a change. I never know when change is coming. It's like shedding a skin. If it's over, I'm done with it. Once something is understood, I abandon it.

The interest in interpersonal relationships: Pauline has never stopped discovering how to relate to her environment, when to make an environment, and when she needs a change. As a young student she left Texas to come to San Francisco to grow in her work. For the next fifteen years she developed that chosen environment, forming the San Francisco Tape Center and eventually starting a studio at Mills College. The Tape Center was important because she realized her need to grow with others very closely involved in their own compositional ideas, giving concerts, developing the media she chose, meeting and talking with, helping and being helped by others. Then came the formation of the [Q] ensemble. It was formed after she'd been involved with meditation, seeking a change in her own consciousness to break away from the anxiety of the sixties with its political upheaval and emotional unrest. Everyone within the group changed. The task was defined by the meditations to achieve a desired change, and the group amplified the change. And now that the group has dissolved, and she knows that she's about "to shed another skin" she says:

> My big interest is the development of a holistic view of consciousness. Beyond consciousness is my effect on others. It's important to be clear in your needs and thoughts of reaction, and of the past, and then do what there is to do. All my work is toward changing myself and my views and having a clear understanding of what a relationship is. My work has led me further into understanding self and group motivations. Relationships among people are what interest me, and developing my work so that they're good.

After knowing Pauline and trying to know her work thoroughly, I've developed a type of compositional model which produces music I can imagine. I don't know how much she's put there by our association, although it's definitely been created under her influence. I suspect that a lot of it is my own imagination developing what I've heard for a long time, but it's changed because Pauline and I can now sit down on the floor and laugh together. When Pauline and I first started talking about music together we decided that we really ought to do a piece together. Maybe we already have, and these are its characteristics:

The rhythmic flow is not strictly linear or shaped. It may appear to be organically derived rather than shaped or contrived. It is likely to move much less in traditional metric values. It may appear very amorphous, or to possess more than one simultaneous shape. The actual rhythmic line will be longer in general, often because of its lack of periodicity, and will not have sharp, punctuating expressions. It may appear to have no repetition of a pattern, or may be made up of different cycles of varying lengths and contours.

The texture doesn't need to be clearly delineated. It may appear very thick and will lack recurring thematic material. This doesn't mean that it will appear dense in a clunky, heavy manner. It may seem rather atmospheric and will create a total environment by its emotional presence. Different sound sources may be indistinguishable (creating something more than the sum of the parts), or several sound elements

may combine to produce something entirely different than either of the parent sources because of various masking qualities. The sound may be very continual, with changes occurring that are very radical, but happening in such a gradual manner that the observer may suddenly realize that he or she has arrived at a different viewing position in total surprise.

The emotional impact may be very intense, but will be arrived at by circuitous means. The sense of cause-and-effect is not present. The intensity is not expressed as a product of a typical buildup and climax, but is a subtle presence throughout the presentation. The sense of "arrival" is almost a surprise because, once aware of the emotional focus of the work with its full force, one will be aware that it has constantly been "there" with him or her throughout the piece's duration.

Or the emotional impact may appear very continual to the point of being static. It may be very low-level, hypnotic, or very fluid and appearing virtually seamless. The latter sensation will come from the piece's energy being very focused and having no big outbursts, no huge jags or thrusts of power. The power comes from a sense of continuity, which is synonymous with survival, or from its cyclical nature—implying a central focus as presented in our solar system, atomic structure, and propagation of wave movement.

The sense of dealing with or delineating time is very elongated and extended. The ideas to be expressed are presented over a very long time period, carefully unfolded in a methodical manner. Each element is assumed equal. This will set up a flow pattern which allows the separate information to be presented without dramatically pointed effects. This will create a pulsing sense of continuity. There may be several separate time lines evolving simultaneously, or only one using different devices to aurally suggest various characteristics of the information presented. Or—certain material may be elaborated after its presentation at varying intervals along with new sonic material, et cetera. Innumerable possibilities! The purpose being, sound can then progress through an organic-rather-than-linear development, which is not easily divided into its primary functions, because it can continually develop a new nature.

There is not a sense of power manipulation of the sonic materials. The event will shape itself through the personality of the performers interacting with the materials. Hopefully there is a possibility of formlessness whose randomness can produce a form which otherwise would not be discovered. This is highly idealistic, but it is an attempt at unity with one's space, a reestablishment of the cyclical nature of energy transformations.

The choice of structure and sonic materials will be made intuitively by all present. This ability for a group of people to join in a group responsibility for the progression of a piece was something never apparent in earlier traditional music. This philosophy accepts the fact that a piece doesn't have to be someone's sacred cow or an entity that cannot vary its identity or purpose. The power from the

group's decision comes from the facts that participants are willing to be totally open to each others ideas, the participants are not afraid of intense interpersonal contact during the piece's duration, and participants are willing to divorce themselves from the conventional protection of knowing the piece's complete identity.

Energy transformations are the central interest of any composition. They may be developed in any number of ways, but the energy should integrate at least some of the following possibilities: it can either appear sustained, flowing, and continual, or it can integrate the energy exhibited within the performance space. This involves interpersonal relationships and intense awareness of and involvement with the physical environment. Interacting with the environment develops a need to have systematic renewal of whatever energy the people drain from it. This firmly establishes a unity with the performance space, allowing all to be attuned to a central energy and to continually reestablish a resonance with it.

The power of the energy established in this piece doesn't come from a mastering of compositional problems. It will come from the lack of fear to become part of a process, rather than the willful manipulation of a process. Power does not have to come from a sense of predominance, and can be strictly internal. The mutuality of a group without fear, seeking something together and creating no opposition, is in itself edifying.

The last piece I saw/heard of Pauline's was *Gravity is the Fourth Dimension*. I arrived at the concert hall to pick up a program and to notice that someone (supposedly, though not identifiably, Pauline) was "lying in state" on top of the piano. Children present were forgetting about space definitions and becoming microscopes. Nothing was wasted on them. Most older types were busily immersed in the process of deciding if they wanted to stick around, and why. David and Kathy came in and sat down, very at ease, but somewhat formally, and watched. The usual people came in and went out simultaneously.

I'd come with two friends. Neither knew what he wanted to do or what he was "supposed" to do. One decided that he had to watch very closely in case Pauline got sneaky and actually "did" something cosmic when no one was noticing. I decided that what I really wanted was to go outside with the other friend and have a good, long talk about whatever seemed appropriate. We left. I was wrapped warmly in my down jacket with a vinyl windbreaker over top. It was great; I sounded like a two year old kid in a snow suit. Little night beasties were cricketing away, and the night was misty and magical, so we talked about going camping, tramped up and down some small hills, sat down on some fallen eucalyptus boughs—and my friend decided to get heavy.

"Just what's happening back there, I mean, am I reading it right?"

"Are you listening to things? Are you ready to just enjoy what you're doing?"

"There was a lot of sound happening back there."

"Sure, it just took listening to. Not a very new idea, but very well portrayed. Did

you notice that she's completely directed our whole evening by simply getting out of the way? I mean here we are, lost outside away from everyone else, listening to sound with nothing particular that we have to be doing, talking occasionally, but just being aware of this time and curling up in it."

More talk. Watching the colors of the shadows change. Cars far away make noises that are very damped in a eucalyptus grove. Misty. Wuthering Heights. Carriages clomping down a long lane, horses black as the night. Climb around somewhere. Wet, tender light, pampas grass. Very scratchy. Thank god for Adidas.

Back at the concert. People aren't afraid to do something by now. Other friend being catatonically quiet. I decide to enjoy myself. Meet Pat in the hall. "Wadda ya say we run around the concert hall in opposite directions?" Run. Wonderful. Just pretend it's a beach. Spray, yapping dogs. Wait a minute. That is a yapping dog. No sleepy morning daydream. A small mutt-like creature is chasing me with tail unfurled, circling in that mad, undefined plane that only a mutt's tail can move it. Appearance of one small kid chasing dog. Kid is eightish, and very excited. Ramon, who I later learned was playing himself, is doing his mad New York poet thing.

After several laps I'm getting tired and fling off sweater onto friend who went hiking with me. He is trying to remain calm, as if he really understands why I'm doing this. He likes it but doesn't know why, so he has rather an "I'm amused but shan't commit myself" look on his face. Okay, not everyone can jog on such hard floors for no reason. It's a gift, like clairvoyance. Next lap. Decidedly tired. Decide to stop.

Friend is watching Andy do a mild Charleston routine on the stage. Rosebloom is dancing sort of near the piano. I admire Pauline's concentration. I decide my life needs more centralized energy.

I decide to do something I've always wanted to do, imitate Sam running down the outside aisle armrests. I discover this takes more balance than my ex-dancer days allow. Rats. Ramon goes home. His kid plus dog need to go to bed. Art is defined by arbitrary outside events.

Sit hanging over the entrance hall. Talk with old friends who look at me like I'm Peter Pan hanging from the ceiling. Nice. I always wanted to be a little boy. Good talk. Friends decide that they liked it, but now want to leave. I'm basically neutral. Could stay a lot longer, but don't need to.

Leave with friends. Have a drink together. Decide to go to a party with Pauline afterwards.

Hot miso. Relax. Very late, nice.

Roger Reynolds with Conlon Nancarrow in San Francisco, 1981. Photo: Gisela Gronemeyer

Landscape with Roger Reynolds

"I'm always interested in new experience"

A Conversation with Paul Robinson

You were talking about the metaphoric "ground" on which one stands, and I think my feelings about ground depend very much on how it is that you're defining it. It's my feeling that the Central Europeans tend to define ground entirely too impersonally.

Do you mean objectively?

I don't know if I mean objectively, but I do mean impersonally. Supra-personally, in an effort to look to things larger and more significant than the self. And preferably those things that have some well-established scholarly substance to them, whether it's political, economic, or social. For example, the Extended Vocal Techniques Ensemble from the Center for Music Experiment[1] just did a series of concerts in Germany and France. They do more with their voices collectively than any other group in the world now and probably any other group that ever existed. Europeans were quite critical of what they did because they (the group members) weren't aware in every case of the historical precedents. In other words, they weren't aware that composers such as Luc Ferrari or Bengt Emil Johnson had explored certain of these ideas ten years ago. But my reaction is that precedence is not all that matters. It's how well they did it; how well did the earlier performers get into it, and how successful were the performances? What did they sound like? Did they sound like this group? Were they able to do what this group is doing? The answer is always "no." But the immediate reaction of the people I spoke to was that the judgment should be made on the basis of historical ground. And that depends on what you're judging, and I'm interested in the phenomenon itself rather than where it sits in some kind of scholarly continuum.

But surely examining the phenomenon has to do with examining the motives that produced it. So what I'm trying to get at is that I feel a number of composers are at a point where they're asking "what is the nature of the ideas that composers have traditionally involved themselves with, and where do those ideas spring from?" I think there is an element of collective unconscious in terms of the ideas that composers employ. And I believe that this is especially true in Europe. I find particular ideas in

1 Reynolds was founding Director of the Center for Music Experiment and Related Research (CME) at the University of California, San Diego in 1971. It was initially funded by a major grant from the Rockefeller Foundation.

your pieces that are related to a common idea in European music, and that has to do with making connections between sounds and gestures.

Sounds and gestures? Gestures of what sort? I'm not comfortable with the word, "idea," or the question of relationships; that is to say, relationships exist whether or not you choose to notice them.

I was thinking particularly of your piece, Blind Men *[1966]. In this piece you add your own words to a text of Herman Melville. It is meant to be your additional interpretation of what his text means in order to elucidate it. For example, you add to his word "flies" the words "falsify," "specialize," "criticize," "wise," "amplify," et cetera. This technique is central to the piece. What do you accomplish by pointing out the relationship between these words? Poets have been telling us for centuries that some words rhyme with other words.*

Well, not only did I add words, but that text wasn't Melville's in any focused sense. The phrases that I used were drawn from a relatively large amount of material he wrote in "Journal up the Straits 1856–1857." It was a trip his brother sponsored to try and get him back into writing. After he finished *Pierre or, The Ambiguities,* he just couldn't write any more.

I should really be asking you why you chose that text. What is the subject matter of that text?

Well, it's obviously "information overload." Too much light, too much information. That text is about "too much" and how you deal with it. What happens when too much information comes in. That's what it's about.

Why did you use that subject matter?

I suppose it was because of what was happening in my life then. That was just after I'd spent four years in Europe. After I came back I received a commission from Paul Fromm to do a choral piece. I'd just had a very bad experience with copyright problems over the text for *The Emperor of Ice Cream* [1961–62], from the Wallace Stevens poem. As a practical matter I found too many strings attached to contemporary ideas, and I think there is a very heavy responsibility when you use contemporary ideas to be using them fully. It's much harder to have a perspective on contemporary ideas than it is on older ones. This is a point that could be heavily debated! But, historically, time has a way of filtering, and the present is much more capricious in the way it treats realities. So I wanted to deal with something that I felt I could handle . . . something I could get inside of.

Is that the reason you chose a text by Melville instead of a more contemporary text?

Well, I'd say it's one of the reasons I started looking backwards instead of looking around me. (At the time, also, it was extraordinarily difficult to get the rights to texts when you were going to publish them.) The second reason that I didn't look around me turns out to be rather complicated. I found Melville very powerful. I liked his sort of allegorical vagueness. I think there is something profoundly Amer-

ican about his essence which is not scholarly, but which is very strong. I had done a piece the year before on a text of his which I'd culled from an enormous variety of his writings. I came across these journals in looking for my first text, and they stuck with me. That is often the impulse for the next piece. That is, discovering something that wouldn't fit, and then going on to make use of it later. So, first of all, I was very much interested in Melville having produced powerful works and then finding he was unable to go on. And then the idea of sending the American abroad to get new ideas—which is where I'd just been. In some sense I felt that our society does that, and especially at that time. It was always possible to get money if you had an interest in being "elsewhere." So many of these ideas were underlying the impulse to do that particular piece.

It was in that period that we saw the emergence of McLuhan, and there was a great deal of thought about information overload . . . media and messages. I rarely agree with McLuhan, but at that point the subject of information and overload, incapacity on the part of the individual as well as society to handle what was happening, was very real. I'm not saying it isn't now, but it was particularly intense then [1966]. So the text that I assembled out of snippets (from "Journal up the Straits 1856–1857") tried to encapsulate Melville's response to Egypt and to Cairo in particular. The thing that kept recurring in his observations was how many blind men there were. And he speculates on the reason for it: "too much light, and no defense against it."

I can understand the personal reasons for you using that subject matter. I think that what I'm really getting at is—and this is a much broader question—who you write for, or in other words, who you are directing the ideas in this piece to? Is this a consideration in finding subject matter for a piece?

Not really. There are two parts, though, to that question. One is that it seems evident to me, and I'm only talking personally—I have no real feel for what other people do and why they do it—that the only structure of taste and impulse that I can follow is my own. I cannot imagine the idea of trying to establish a structure suited to the person who is supposed to perceive what I'm doing. To imagine that you can foresee what will or should affect other people is to me the height of egotism. I think the most you can conceivably do is to be honest with yourself.

But your ideas cannot possibly exist in a vacuum. You must be affected by the work of other composers and audience response, et cetera.

Of course, but what I'm saying is that to make a judgment about the use to which my music should be put is to be pompous. The way that I would be in trouble, philosophically, is if I wrote these pieces without a concern for other people and then demanded that they be played, if I energetically supported performances, and trumpeted the importance of what I was doing. But I don't do that. I don't seek performances, and I don't encourage them. I'm very glad if it happens, but if someone says we're having a lot of trouble putting this piece on, I say, well, perhaps you

shouldn't do it. The way that I feel, and I feel that I keep honest with myself, is that I do these things (and I've always been this way from the minute I started composing), I do these pieces, I hope that they are good and I hope they are of value to somebody. But they can wait until someone decides they are of value, and then if they perform them, that's wonderful.

Do you have any idea which people they will be?

I don't know that I want to answer that question, and the reason I don't want to answer it is that it is tinged with the same problem I commented on a minute ago, relating to the assumption that one could foresee the needs of others.

Since we're on the subject of politics and music, I'm interested to know if you're familiar with Cardew's point of view outlined in his book, Stockhausen Serves Imperialism?

No.

I'd like to try and summarize what he wrote about what a composer's involvement with society should be.

I would immediately object because the composer's responsibility is not to be involved with society, but to be involved with sound. That's the first responsibility. Any other responsibility is a diversion to start with.

Yes, but as soon as a composer puts pen to paper he is more than involved simply with sound: he is involved with musical and extra-musical ideas. In other words, the ideas you described in Blind Men *primarily draw from experience outside of music.*

Of course.

I sense what you think I'm trying to say is that you should in some way be insisting that your ideas are more important than anyone else's. I'm not saying that. But I am saying that you should feel your ideas are both important and broadly based.

I wouldn't be doing a piece if I didn't. The place where it seems we part, is the question of imposing further value on these judgments by using certain structures of an economic, social, or political nature to elaborate and reinforce their importance. Stockhausen clearly does so.

It seems the opposite pole would be to isolate yourself from society and the possibility of . . . Cardew talks about the rise of the bourgeois artist and his removal from direct contact with an audience he knew by the changing of a composition into a product to be sold to the highest bidder. He sees all "art music" as we know it to be completely tied in with the free enterprise philosophy of the bourgeoisie. I can't say I agree with him completely, but I have been giving it consideration recently and it seems like a good starting place to draw out your basic musical beliefs.

I certainly don't feel that I am isolated. I participate as fully as I know how in the opportunities that life offers me. Secondly, as Cage puts it, to not try to improve the world in a direct way is not to abrogate responsibility. It's certainly true that I ignore some issues, at least consciously. I don't try to go after them. But I think that's self-evident, and that there is not a human being alive, and never has been, who has

not ignored a great deal of what was surrounding him or her. It's impossible to process it all, so I don't try. I admit that freely. I go back to the earlier point I made, though, that the fullest responsibility I feel is to be honest with myself and my own impulses. I know that the moment I am distracted, I fail to do that. I believe that's true of everybody else too. That's something I would pass on as a philosophical position.

I don't quite understand what you mean by "diversion."

Well, I'm talking about what happens if you divert your attention from an overall immersion in the substance of the work itself, and by work I don't mean the composition, rather the process of human daily involvement for any person—and in the case of a composer it is a more musical involvement than any other—the process of taking that stream of interactions and responses and capturing them in some kind of "sample." A composition is like a sample which is held. I don't see pieces as something you work towards, but as something which is an output derived from an ongoing interaction with what you are at a particular time.

Give me an example of a diversion that might affect you.

If I were to start thinking about social, or political, or economic considerations, they could then take over. And this year, in fact, we had a tremendous crisis in political leadership and ecology in our town [Del Mar, California] which I began to get very much involved in. And while organizing the campaign and campaign literature, it became clear that the difficulty of reaching the people in this community so that they would elect the people that I believed would look out after these concerns was a great problem.

And that distracted you from your music.

I see it as a distraction because I see, rightly or wrongly, that I am probably politically naïve and much less suited to that kind of work than to the musical work that I've been doing for quite a few years. Still, I did it, and I know that of course I could become interested in Communism, or in Socialism, or in mysticism or in anything else, and in fact I have been. The story of my early life was entirely that: one interest after another. As I look back, it was one momentary involvement and enthusiasm after another. I went through five years of engineering education before I went into music. And at the time I went into music, I realized that I either had to focus on it, or lead the kind of life which has a lot of diffuseness in it, and I decided that I didn't want to live that way. So I really focused on music.

You have described one major criticism I have about Cardew's thinking. He mentions in a footnote an occasion when [pianist] John Tilbury and a friend visited a political demonstration in Southampton. They took some musical instruments along with them to provide music for the demonstration, but then threw them aside as "pathetic encumbrances" when they arrived and joined in "honestly." That statement seems to imply that music's function in politics is "pathetic."

In a way, I'm sorry to start out on this subject because I know I'm less well-in-

formed, and I don't have anything of any great importance to say on any of these matters. But one observes such things, whatever one's allegiances, and when Cardew was here [at UCSD] a few years ago, it struck me as being tragic, because I take people at face value, or I try to, and so when Cardew maintains his passion was apolitical, I am willing to accept that. I'm willing to accept that he is not following a convenient path for public relations reasons, but doing something that he believes in deeply. But when he proceeded to sit down at the piano and play pseudo-Wagnerian transcriptions of Chinese folk tunes, I thought it was appalling. And most of the students here felt similarly; he didn't go over well at all. I think that's because of this sort of inner conflict, this perceptual dissonance that one perceives from the outside in anyone who attempts to take a musical stance and use it for some unmusical purpose.

Would you say the same is true of Cage? It seems that Cage's biggest contribution to music is that musical ideas can come from a much wider field than we've accepted up to this point.

Well, that's a very important contribution. Would you say that Cardew has made a comparable one?

I don't think so, because Cage does not take a definite political stance. He opens up the possibilities without trying to direct anyone in a specific way. But it does seem to me that what you criticize Cardew for (a musical stance for a non-musical purpose) might equally apply to Cage. Cage doesn't seem worried that non-musicians are interested in what he has to say. At Mills College, there was a very strong reaction against Cardew, but I'm not really certain whether it was for the same reason that your students had, or whether there was an element of offense taken to "avant-garde" principles being attacked in this way. I do think that there is something in what he is doing that touches the conscience of the avant-garde. I'm at a point where I think it wouldn't do the "avant-garde" any harm at all to redefine their beliefs and goals, and I feel Cardew has this effect.

I didn't take any offense. I don't feel I could take offense to anything . . . well . . . that's wrong. I think it would be difficult for me to take offense at anything someone was doing honorably and with real commitment, and I wasn't offended in any way. Cardew represents a relatively minor aspect of my involvement with music. I've come across him a number of times and he seems to be a hard worker. But in performance, Tilbury seems to be vastly more interesting.

What surprises me about Cardew is that he writes music, as you say, in a sort of nineteenth-century style and tours America's new music circuit.

Well, it's clearly related to the art world where a *posture*—and I don't mean this in too cynical a way—can be accepted as *substance*. That's certainly true in the visual arts, but perhaps less so in music. I never use that word "avant-garde." I'm a little uncomfortable with you using it now, because I'm not entirely sure I know what you mean by it . . . I may as well come right out with it. One of the things that I don't like about much of life right now, and perhaps this is the California bias that I've

picked up recently, is the fact that one talks all the time about music as a field without talking about specific music or listening to it, and that one frequently talks about feelings and emotions and human interaction without having had them. I think that's another way that life and experience have been opened up, or re-opened recently. It's not only one of the distinctions one finds between Europe and America, but between the East Coast and the West Coast. I don't believe that one can go to the blackboard to demonstrate the value of a piece of music, although there are people on the East Coast who do feel that way. To my mind, that's the European situation. It's not the appeal to experience, but the appeal to intellect.

I agree entirely, and it was only because I tried to explain some angles I might take in this interview with you that we spoke at this length before listening to each other's music. Let me just ask one more question as it is not specifically about your music. Inasmuch as you received a degree in engineering before you got into music, I wanted to ask if there is anything that you feel that a musician who comes to music from another field has that is unique.

I think that the uniqueness, or to remove value, the distinctions or the differentiations that one makes, have to do, again, with one's allegiances. I came to music late—not as an experiencer of music or as a lover of music or even as an *empathizer* with music (which is perhaps to me the most important thing, that is, the deepest root). I think that coming to music as a formal discipline late, and coming from a more obviously structured discipline, that of engineering, I'm less beholden to musical limits and standards. I have, perhaps, less respect for them, and I think the reason for that is a healthy one, that is, that I don't need them to protect me. I think a great many musicians (and people in other fields that involve as music does, a very long immersion) tend to use historical or structural aspects of music as a way of establishing their own identity and defending it. And I've had a very strong lesson in this matter recently because a book that I wrote three or four years ago has come out and generally speaking, musicians find it difficult because it doesn't include a lot of musical examples. It isn't based on what they feel music is. It deals with what *I* feel music is, which is considerably less restricted in certain ways. It involves all kinds of ideas, all aspects of the human mind and experience. And I was quite shocked, actually, by the depth of hostility that this book engendered in certain people with whom I've previously had very good relationships.

This book is called Mind Models *[Praeger Publishers, 1975], isn't it?*

Right. And it raises a certain amount of passion in people who say, "When do you get to the music?" And I say, "From the first sentence." I mean, that all has to do with music as far as I'm concerned.

Is it because you don't deal with specific techniques [in the book]?

I guess so. And it's in no sense musicological or theoretical. It's not that kind of a book and, to be honest, I wouldn't be interested in writing such a book, although I think I could.

Would the same people have disliked Cage's books?

Possibly not so much, because they expect a certain posture from John, and also of course, John has an elegance in the way he expresses his ideas, which is clearly literary and puts you in another mode of perception right away. I think that when you read Cage, you're reading literature, and that's a part of your perception. There's no way you could assume otherwise. John builds-in his own defense because he's so elegant with words that you wouldn't think to doubt the ground from which he's writing; you choose to accept it because he skirts music so broadly in every way. I don't ignore music that much, but perhaps almost that much. I found the book got a very strong response from people who, for example, are in musicology. I was really surprised. After all the years that I've been dealing with musicians, and even now as a professor at a university, I was caught off-guard. It surprised me that people could be so insecure as to be threatened by a book that purports to be about music but isn't about what they think music is. I've never understood why ideas threaten people and aesthetic experience threatens people, and that is what the book is all about.

The first thing I notice about your music as compared with others represented in this book is that all of it is published.

Why do you think that's so?

I think there is a feeling amongst the ONCE Group composers and their students and friends that it is an isolated group. This is partly for economic and aesthetic reasons in that there is not as much support for experimental activities in music as there should be, and that in the [San Francisco] Bay Area and probably elsewhere, they don't have the most admiring press coverage. These composers have come to feel that their music is for each other and for anyone else that happens to become interested, so there is no need for a publisher. A publisher's function for a composer is to act as a halfway house between him or her and a public that the composer is not in direct contact with.

How do you relate that to social responsibility?

That's a good question and I think it needs answering because nothing has changed in the direction of more support and encouragement from the community when we turn away from them. The first question the community asks, is "Why should we support it?" I feel it's about time we had some very "out front" reasons for them to do so; and there are reasons. However, I don't think this group of people [ONCE, et cetera] is looking for wide appeal.

That's not what I'm looking for either. It never quite occurred to me as explicitly before . . . when I wrote *The Emperor of Ice Cream*, Bob and Gordon and I were in the middle of trying to do ONCE. I wrote it for the Bob James Trio that had just won the Notre Dame Collegiate Jazz Festival, and they played a lot on the ONCE festivals. The vocal parts were all going to be done by music school cast-offs. The

part that was going to be for timpani was played on an oil drum because I knew we couldn't get the use of timpani. The lighting was done with flashlights, and the costuming was whatever you had in the attic, et cetera. All of this came as a response to the circumstances: I wanted to do a theater piece but I wanted to do something that we could perform, and that was going to work in our context. We didn't have lighting or stages or costumes, and we didn't have available the type of instrumentation a European would have used. I wrote this piece in the context of ONCE and for a ONCE festival. At the same time, Bob Ashley was writing *Public Opinion Descends Upon the Demonstrators*, and Gordon was writing *Sinphonia*.

From the beginning, I had an attitude which said, "I'm not going to perform my own music." I don't know where this position came from, but I had the conviction that it was very important to get the most out of yourself, and it seemed to me that the way to get the most out of yourself was to try to refine your ideas to the point where they could be put down on paper in some fashion. And, then, if you got in the middle of the process and were an interpreter of your own ideas, this naturally released you from the responsibility of thinking those ideas all the way through: because you were *there*, you were involved and intuitively or judgmentally your interaction with the situation would make it come out as you wished it.

In other words you are criticizing improvisation.

I'm not criticizing anything. I'm just saying that it seemed to me to be an important responsibility to refine your ideas so that they were accessible to the attentions or the criticisms of others. If I did a loose sketch, and was there at rehearsals and shaped the musical situation by my own additions and interpretations of what was on the page, as it were, it would constitute, at least for me, an evasion of the problem which was most severe. And that problem was to decide exactly what it was I meant.

So I created that *particular* piece. I suppose I wrote scores partly because I'd just come out of engineering school where you did diagrams of everything. In fact, I'm certain that one of the reasons I was intent on doing scores very carefully is because of the engineering and drawing. But at that point, everybody in ONCE was doing written-out, musically notated scores. Gordon did very elegant scores and so did Bob.

But their scores are very different from yours.

Not at that time. Have you seen Bob's *Piano Sonata*?

I thought most of Bob's scores were verbal description.

After that, certainly, but at that time they weren't. They were all written very thoroughly. No, that's misleading, because anything he ever writes down is always thorough. They were written in notation, musically. And you have to remember I was much less experienced than they were. I'd had very little formal musical training and Bob had been at the Manhattan School as a pianist and Gordon had played horn in an orchestra for years and years so I was really the novice and the outsider.

That surprises me.

Well, it's true, I came out of engineering school and had been taking piano lessons in Detroit with a private teacher. That was my musical background. I was into putting things down carefully. The point I want to make is that suddenly, this summer, I find myself in a situation where a group of professional musicians in New York have decided to record a piece [*The Emperor of Ice Cream*] that I wrote fifteen years ago. I feel good about the fact that that piece—whatever it was then—is available to them now, in a way that, had I been working differently, it would not be. I didn't like everything that these musicians did, and, of course, I had quite a big hand in making the recording sound the way it sounds now. If I'd done that recording fifteen years ago, it would sound differently. For example, it's about twelve or fifteen minutes long, but if it were staged, it could be twice as long. Certainly, my time sense has changed very much in the last ten or fifteen years. But I like the idea that those original musical notions are open to musicians anywhere to look at and decide whether or not they want to do anything with them, and, if so, what.

I find there is a lot of cultural enrichment and social interaction promoted by having ideas in the marketplace. They're there, and people either use them or don't use them. If people don't use them, then the music evaporates after a while. If the publisher doesn't sell any copies, then he doesn't print any more. There is an interaction there that determines some of the value. I sometimes have been unhappy as an observer about the fact that ideas and experiences of the quality that Bob and Gordon have generated consistently over a long period of time, are not so readily accessible to people. That does bother me, and I've talked to Bob about that. We did, in fact, his theater work *That Morning Thing* in Japan. Bob came over but got some kind of dysentery just before the performance, so he was out of commission. I thought the piece was wonderful; it made a tremendous impact on the Japanese and created one of the biggest concert reactions they'd ever had. Here was a ONCE piece which was being done in Japanese in a totally different cultural context and had been prepared by performers that had never met Bob. So, what I get back to is, just because someone has chosen not to put something down in some kind of permanent form doesn't mean that it *can't* be put down, nor does it mean that those ideas cannot be transferred.

Actually I believe Bob has published some of his scores. The difference between your scores, however, is that you choose to be precise in every detail, and Bob chooses to be precise in outline.

I teach a course in notation at the university in which I use Bob's work as one of the main parts of the course.

One thing I was anxious to bring up was the whole question of complexity in your work. Why do you write only for people who are virtuosos on their instruments? Is that a fair description?

Well, it would be fair to say that I write things that require a lot of attention on the part of the performers. Now, frequently it does happen that the music becomes

virtuosic by virtue of the fact that I keep specifying what it is that I want to hear. If you take as virtuoso piano music, for example, the music of Schumann or Chopin or Beethoven, then my music is trivially easy to play compared to theirs.

Really!

Of course! Think of what goes into playing a Chopin *Etude*.

I'm thinking of a piece of yours entitled Fantasy for Pianist *[1964].*

Do you know what Yuji Takahashi's criticism of that was?

No.

He said it was too pianistic.

Does that mean too easy?

Too easy to play for a pianist. It was too natural to a pianist's technique. I think it's true. At the time he said that, I thought he was crazy.

But he's not only a virtuoso, he's one of the best! I think that maybe your scores have a tendency to look more complex than they really are.

I agree, and that's something that has put some people off, because they look at it and think it's complicated. For example, *The Emperor of Ice Cream* didn't get performed for three years after it was written.

I thought you did it at the ONCE festival?

No, it was never done there.

Why was that?

Probably because I wasn't there to direct it. It actually wasn't done until late in 1965, and when it was finally done the people who worked on it said, "Well, it's not that difficult."

Which people worked on it? I've always had the impression that the performers in ONCE were all musicians pretty much outside of the "profession" of music. I mean they were not the average "New Music Ensemble" types, and I guessed that perhaps they were in ONCE because of some disillusionment with the standard channels of new music propagation.

The first two performances [of *Emperor*] came within a few days of each other in 1965. One was presented in Rome by Daniela Paris, who was a conductor at the Rome Opera and also a very lively, radical sort of person. He was roped into doing it by Franco Evangelisti, who was organizing the festival Nuova Consonanza in Rome then. It was put together with a collection of eight distinctive singers, and I think it is true to say that not one of the eight communicated well with any of the others. The bass was a Russian, the first soprano was Japanese . . . a very curious situation. At the same time, Gunther Schuller did it in New York with a group of professionals. I never heard a tape of the Italian performance. I was in Italy when they were rehearsing it, but then I had to fly to the States for another performance. I didn't hear Schuller's performance live either, but I heard tapes of it and most of it was represented as though it were written in triads and *sprechstimme*. They simply didn't produce the sounds that were written. Now, the recorded performance that

you heard by the Gregg Smith Singers was really right on. The pitches were all there. I don't think that even fifteen years ago it would have been possible to do a recording like that. The singers were very good, but to get them, then, to do even the modest requirements of that piece would have been difficult. I mean, if you actually look at one page and ask what's involved in performing that page, it's actually very easy. I think that what is problematic is that there is a context which is unfamiliar for the actions and the sounds, and further . . .

The notation is unique also . . .

Of course, but in the end it is still economical given all of what it is that I want to make happen.

Is there, maybe, an element of your enjoyment in a well laid-out and attractive looking page as a consideration when you're composing?

I hope not, and to the degree that there was, I'd repudiate it. I'm really not into the idea of *augenmusic* at all. I notate something the way I do because I think it's the clearest way of saying it. And that could mean that it's not familiar. On the other hand I've written pieces that look very familiar and traditional but which don't sound that way. It just happened to be, again, a more economical way of writing.

Well, I've looked at that score [The Emperor], *and what surprises me is how different it sounds from what I had in mind.*

Well, maybe it's wrong. I would be very much interested in the possibility that if you look at a score and it means a certain thing to you, and if you were in charge of the performance, it would come out sounding as you see it. This is why I say that, in a sense, a score is a means of delivering oneself to one's time, to one's society. I wouldn't be bothered by that in the least. In fact, just the opposite; I would find it very interesting. I've never actually asked Bob how he reacted to the performance of *That Morning Thing*. We also did *in memoriam . . . Esteban Gómez (quartet)* for a record in Japan. I remember getting an astonished reaction from Salvatore Martirano, who, though not like Bob or Gordon, and not a ONCE composer, always wrote his pieces for people he knew and for particular sounds he was familiar with. When I first wrote to tell him that we were going to do his work *Ballad* in Japan, with Japanese performers and an American army sergeant who couldn't read music, he was very surprised, and I think not terribly happy. I was also going to present his *L.'s G.A.* with an American who did dubs for commercials and who had never performed music of any sort. And the performances, at least in the end, were very good. But, at first, Martirano couldn't believe that we could do something that complex.

I think probably we don't know very much about what it is that people really want to do, what they like doing. Have you ever read Huizinga's book *Homo Ludens*?

No.

Well he's an anthropologist writing about "play," and he claims that the human being is essentially "play-directed." He talks about children's games and what it is

that adults do with their days—he explores the question of when it is that people are willing to obey rules and when they're not, and what constitutes "an admirable performance" and what doesn't. These are very fundamental questions, and matters about which I think Huizinga is only speculating. That's one of the problems I have with "populist music." I'm not sure I know what it is that people like or like to do, and I think there are big gaps in the degree of clarity with which we define art and other forms of activity that have aesthetic overtones. There are a lot of things that we enjoy doing on just a convivial basis . . . like walking together. It's enjoyable to walk in a big group of people, especially when there is a sense of arrival—going to a football game, or whatever.

Maybe that's a good insight into the insular nature of the group of composers we've been talking about. Things are changing at Mills and appear to be going towards the direction of enticing larger crowds to concerts. Only a short time ago there was a feeling at concerts of it being a "secret society." If only ten people showed up—and this was sometimes the case—it was okay as long as everybody had a good time.

Well, I'm not unhappy with that situation either, but what I am saying is that it's always risky to put yourself in the position of trying to determine who should listen, who is listening, who has listened and what that means.

But you've said before that you want your music to be played and to be listened to.

I'd be glad if it were.

I feel that a number of composers are thinking that if the audience for new music is fading away, then there is reason for it and that reason can be one of two things. That is to say, it can be on the audience's side or the composer's side. Either the composers are not making their ideas clear enough in their work or the audience is turned off for reasons we don't know. I'm a little puzzled by what you say because you say that music may be like "play"—that we enjoy walking together and . . .

I meant to say that there are things that we like to do, and there are things we like to observe being done and I'm not sure that an effort to join those two is well-advised. I think they may be different aspects of human behavior, and that the something we may want to participate in should involve natural capacities that we all have and not put too heavy a demand on what we call "skills," because "skills" differentiate, and in certain sorts of situations, one does not want to be differentiated.

But all your pieces involve highly specialized skills, from my point of view.

Oh yes, there is no question on this point: I never have, and probably never will, go into that area of simple, "on command" music. It doesn't appear to be suited to me. However, it's not that I would object to it. In fact, a number of times I've set out to write simple, easy pieces. But they just never came out that way, and so, after a while, I gave up that idea, and decided to do whatever I felt was required by the situation.

This is a much more general question, but related to what we have been talking about. In the biography printed in most of your C. F. Peters scores, it states that Ives,

Varèse, and Cage have been important influences to you. While we are on the question of complexity, I'd like to ask you about the relevance of Cage to your music. It seems to me that Cage's importance lies in opening up philosophical and conceptual areas that previously were not considered to be directly related to music. I'm thinking especially of the involvement of individuals who normally would not be thought of as musicians. You speak of the reserves of musical talent that everybody has, but your own music is very much for people with specific kinds of talent. Could you comment on that?

First of all, I'm not happy that the music I write turns out to be restrictive. It's simply a fact I've come to live with. And it comes from following, or trying to follow, the dictates of my ear and my mind. That's the way it comes out. Now, with regard to Cage I'd go back to what we were discussing earlier when you said that when you looked at the score of *The Emperor of Ice Cream* you didn't think it would sound like that, and I remarked that perhaps that isn't right. I meant that I'd be quite willing to accept the idea that the score means other things than what I thought, because at this point I've started stepping in, in certain instances, and interpreting my own music. The thing that I get out of Cage may not be by any means what Cage intended me to get. So, I agree that Cage had among other things the effect of making people without formal musical training understand that it was possible for them to do music too. But I don't think it follows that Cage intended them to do whatever they did without great responsibility, precision, and honor. In fact, just the opposite. Cage is venomous on the topic of irresponsibility. He talks about discipline and skill and responsibility all the time, which is a little curious because it's clearly not the way a lot of people take him. But what I think I got most out of Cage at that stage was the insight that if you've always looked at a certain parameter or a certain context or a certain idea as having defined limits and standards, you should learn to ask constantly: "Does it *need* to be like that?" To me, that was an enormously important step because much of my training in my early life was very regimented.

I thought you said that when you came to music, you didn't have any musical prejudices as you had come from another field.

I said that I was less beholden to the tradition of music. It's not that I didn't have any sense of what music was all about. It's that my entire being and training and ego was not invested in music; therefore, it didn't have that kind of control over me that it would have if I had given my adolescence to music. I gave it to all kinds of other things.

If I could turn to a more general question, I'd like to ask you what you feel there is in your music that you think would identify it as being American. In an interview with Michael von Biel, you mention that during your residence in Köln, European musicians took exception to certain repeated-note patterns in your music on the grounds that in European terms, that was just not done. It was something that wasn't

in their background. I imagine they are thinking about the "serial" idea which has non-repetition at its root. And that element [repetition] has been very prominent in your music from the early sixties. Are there any other aspects of your compositions that you would identify as being specifically American?

I guess that offhand I wouldn't say that repeated notes were an "American idea."

But it was what they noticed as being different about your music.

When I went to Japan, the composers there told me they thought my music sounded quite Oriental. Well I'd never been to the Orient, I never had any interest in it, and I never had any experience with it. But, at that time, what they were referring to, I think, was the existence of very long background sounds and my willingness to start something and just stay with it—not to immediately go on to another point, but to start a sound and let it go on for a while. And they perceived that as being Oriental.

Your piece Threshold *[1968] has moments like that.*

Certainly, but that was written after I'd already been there for a while. They would have been talking about sections of *Quick Are the Mouths of the Earth* [1964–65], I suppose. Actually I don't know what they had heard. C. F. Peters, which had been publishing my work, had also been publishing the work of a number of Japanese composers such as Ichiyanagi, Mayuzumi, Takemitsu, and Fukushima. So they already knew my work before I came there, and that was good because it gave us [my wife, Karen, and I] a natural introduction. Again, as doers rather than observers. We didn't come over to study them; we were simply musicians playing music. So far as identifying what things are American, I don't know. I said to you before that I don't feel I have a very good perspective on what I do, and I've not tried to have any.

I was asking you earlier whether you had listened to Berio because there were a lot of vocal techniques and general concerns in that piece that I associate with a piece like Circles.

I had heard *Circles*.

In fact Bernard Rands' music also shares some of those considerations.

Of course, but I hadn't heard any of his music at that point. It's certainly true I had heard *Circles*. Cathy [Berberian] had done it in Ann Arbor with the Domaine Musical players, and ONCE had them when they first toured. Obviously, everything comes from somewhere, but I don't know where all the vocal techniques in *Emperor* came from. I do know that, to a certain degree, the textural complexity is an outgrowth of an early enthusiasm for Ives. One of the things that Ives' music indicated to me was that you weren't expected to hear everything, and that therefore when you went back a second time, you heard the music differently. That's also a notion of Cage's. There are many ways of achieving unpredictability and unrepeatability. It's not only by being arbitrary in your choices so that a pattern can't be anticipated. It is also in having something that is so complex or variegated that you

can't subsume it, and as a result, each time you go back, you follow a different train. I like that very much.

That reminds me of another question I had about "experimental music" because another aspect of Cage's work which interests me is the idea of doing things "the outcome of which is unknown." Is there an element of experiment in your own works?

Always. If I could say that as a composer I had some strengths, probably one strength would be my ability to foresee the sonority, as I have good aural imagination, and before writing anything, I always know what it is going to sound like. And it always sounds as I expect. But the thing that I can't foresee—and I wonder whether anyone can foresee—is what those particular moments of sound will add up to when they are experienced. It's not just tempo; it has also to do with abutment. It's one thing to hear a certain sonority in your mind as you're writing it, but it's something else to have those actual stimuli come in, one upon another, in a sequence, and be subjugated to all the complexities of the mind that is perceiving, that is remembering, and that is expecting. For me, that is always an experiment, and I would be as careful as possible about not repeating anything I recognized as a formula or recognized as a mannerism.

A cliché.

I've never done any piece with the same aim or impulse as an earlier one. From the outside, it may not look that way, but I always have a different idea when I'm starting a piece, and if the idea were too familiar, I would not do it. I'm interested in the possibility that a piece can add up to something I haven't experienced before. I'm always interested in new experience, whether it's mine or someone else's. But experiment in terms of trying something I was really unsure about would be very rare. You know, Varèse was really quite adamant about never presenting "experimentation" in a composition.

It all went on prior to the actual piece.

Right. And I would say that to a certain degree that's true, but I would find it awfully dull if I anticipated everything that happened. I would feel very let down—why do it?

I've done a certain amount of that in my music. In a recent music theater piece there were several passages where I chose two or three events to be happening simultaneously. This involved an instrumental group playing on stage with a film projected behind them and a tape-recorded accompaniment. I had no real certainty about what the effect of those three things together would produce, I just wanted to see. Is that something you wouldn't do in your music?

It's hard to make the line fine enough. In the case of *Ping* [1968], for example, I certainly didn't know precisely what the effect would be of being subjected to the film, a series of slides, a complex, circular series of words which were distorted visually by colors and prisms, and at the same time, a four-channel sound onslaught. Certainly I didn't know at any one moment what was going to be happening, be-

cause it would be different every time. There is no way that you can know what's going to be happening; the film and the slides and the music are always going to be out of sync with whatever they were before. It's inevitable. I like that. On the other hand I knew very precisely what each of those streams, independently, should be doing; how they should be behaving; what their material was; what their limits were; and how they were evolving. So, the line between knowing and not knowing, between predicting and not predicting, is difficult to draw. I don't ever know precisely what *Ping* is going to be like in performance, but I know it's going to be something like "this," and if it were not like "that," I would probably be disturbed. I would know that it hadn't gone right, and sometimes that happens. I'll see that certain types of things are happening and I'll realize that the slide people are off in their timing or sequence.

This line we are talking about is a line that other composers from ONCE choose to take much greater liberties with.

Well, I'm not sure. I think so from the outside, but if you look at it from another standpoint you could say that although they may be willing to "accept anything," this "anything" is only something that a certain small group of people are going to do. That is to say, are they really willing to take the same ideas and materials and give them to *anybody* and accept what it is that comes as a result of that? Probably not. So I'm not entirely sure where there are frontiers, where there is openness, and where there is not. All those questions are many-sided. That was certainly the case for a long time with David Tudor. Everybody would say, "Well, as long as David is playing it I'm willing to accept anything he does," because he never did anything that was unacceptable. But it's something different to give it to pianist A, B, or C, who might have a tendency to do things that you didn't find attractive.

Do you want to ask your question about "experiment?"

Well I think we've pretty much covered that.

I just indicated that *Ping* was still very much an experiment for me in the beginning, and if it hadn't turned out to have potential as a composition, it would have stayed that way. I would have been happy to have explored those things as homework. But then I got excited about *Ping*'s impact, and that combination of space, and the voice, and that surreal expansion of the human and non-human. I think it's a very heavy area.

You've done a lot of work in the spatial location of sound. Your piece Again *[1971–74] has various sections in which the instrumentalists change positions. There's a four-channel tape and moving amplification . . .*

It came from a concern with creating a total sound environment, but not an uncontrolled one. I'm not trying to produce the effect of "reality" which is always multidimensional, and I don't just want things going on all around a listener. It's a matter of being interested in "spaces" that don't exist elsewhere, and I think there is

a good deal to be said potentially—if again one wants to return to the question of "public service"—for providing opportunities for people that they don't otherwise have. I mean obviously in some sense, any experience is unprecedented in one way or another, but our capacity to make perceptions, spatially and linguistically, extends very much beyond the demands that are put on the nervous system in ordinary life. So, we're able to perceive things in music that we would never have occasion to perceive in any other way.

You mention "homework," and in your pieces you are extremely specific about notating effects you get from inside of the piano, multiphonic sounds on wind instruments, whistle tones, et cetera. How much time do you spend investigating before you use those sounds in a piece?

A lot. It's the same thing we were talking about earlier. I like the indefinite and variable aspect of those sounds. On the other hand, I don't use anything until I feel very confident that it's practical. I need to be certain that not only one, but a number of performers can very reliably do the things that I'm going to ask for. Now, that's when I'm using them in a piece or in a score. With regard to *Still* [*Voicespace I*, 1975], clearly I couldn't make a score or a performance piece out of that. There is no way anyone could ever perform that live; not the singer that recorded it [Philip Larson], nobody. It would be quite impossible. So there I'm not restricted, and can use anything I pick up with a microphone or anything I can do with electronic modification. But so far as instrumental and vocal requirements in a live piece for performance are concerned, I'll take a lot of time to research the possibilities—and that doesn't mean just asking people "what can you do"—it means trying to figure out why these things happen, and then asking the player to try certain techniques that I have reason to believe would work. And sometimes they do.

You say you have a good aural ear. Is that just something you have naturally?

I think it is in the sense that some people have a great pitch sense. I think that most people realize they have some pluses and some minuses. We all have holes and we all have prominences in the physiognomy of our work. I mention that just incidentally. I don't usually talk about that, but it's something I know from a composer's standpoint. I know what something is going to sound like. But what it's going to feel like in a larger sense is not known, and I wouldn't want it to be known.

I was thinking of a section at the end of The Emperor of Ice Cream *involving a disjunct series of attacks. Each one is very different and articulate and I wonder if you did the same kind of research with that?*

Yes. And they are also performed in darkness which makes them much more effective. It's the end of the piece, and it's becoming darker and darker, and finally it's completely dark.

How do you go about doing homework on large orchestral effects?

I don't know.

It seems to me that you have to guess to a certain degree what does and what does not work, and if it doesn't work in a piece, then you tend not to use it.

That would seem right, but, for example, I feel that the orchestration that you heard in *Threshold* is successful, and yet I had very little experience or training with a really big orchestra sound. It's just something that's never been a problem for me. The homework really doesn't come in that way, it comes in terms of getting an informational base from which intuition can operate.

There are several questions I have about your compositional technique. I wonder how you go about choosing pitches? It seems that you use a very systematized approach.

Well, *Quick Are the Mouths of the Earth*, for example, is totally serial. Not only the pitch selection but also the textural fabric, the timing of sections proportionally, are all worked out in a rigorous manner. And that's actually what led me to being concerned about time perception. I decided that in working this way, which is a kind of standard approach—it is the way Wuorinen works now as I understand it—dealing as it does with musical architecture in a proportional way, and with numerical aspects being drawn by some means from rows—for example, putting a row in its most compact position horizontally, and then measuring the number of semitones up, to get numbers and so on—that was a common procedure in the fifties and sixties with serialists. I was taught those techniques, and for a considerable period of time I used them. I suppose simply because they provided a basis upon which to act.

Could you describe in more detail the technique of "architecture" you just described?

Well, as it was taught to me by Roberto Gerhard at the University of Michigan. It's a matter of taking a given series and using it to shape everything.

A twelve-note series?

Usually, for the hard-liners, although it may be segmented in a number of ways into trichords, hexachords, or whatever. I tended to divide it into three, four, or five, or some division that wasn't even. There is a most compact way of expressing a series. Of course a series is not in the end a series of pitches but of intervals. However, at the very beginning, when you are building a set, it's possible to treat it as a succession of "pitch classes." Well, clearly, if you have a *G* and an *F*, it can either be a major second or a minor seventh, depending on how you dispose it. So, the idea would be to establish the row in a compact but acceptable position.

Within an octave.

Perhaps. Now the most compact position within any series of pitches or pitch classes is known. To take a trivial case, let's say you have the chromatic scale. Obviously, if you start on *C*, *C* would be 1, *D* would be 2, et cetera, up to 12. If you take a series that begins with any particular sequence of intervals, you'll have, associated with these pitch intervals, a particular series of numbers from 1 to 12. If you

then permute the notes by inverting the row, you also permute the numerical values. So, if you were dividing your row into tetrachords, it would be possible to add up the first three intervening interval numbers and define the first tetrachord in this way, or the first four numbers that are associated with the pitch classes, and determine some kind of numerical relationship. Let's say the first group of pitch-class numbers adds up to 36, and the second to 24, and the third to 12. You'd have a three to two to one ratio. And it's that kind of approach that can generate architectural schemes for formal proportions in serial pieces.

It was felt by some composers that there was some kind of parsimony operating there and that, if the time durational numbers were drawn from the pitch structure, it was preferable. Clearly, it's convenient, because it gives you reasons—if you lack reasons—for doing something one way rather than another. But after I'd done this kind of thing for a few years, I began to feel that in spite of the fact that the structures that were created in this way had a sort of perceptual integrity, they didn't have an integrity that I was able to feel easily. In other words, one section was longer than another, but the *feeling* of time experience during that "longer" section might be longer or shorter than a section that was objectively shorter. So I began to detect in my own reaction to music that there were discrepancies between what the architecture was supposed to be doing in clock time, objectively, and what I was actually feeling about time passing. I got curious. "What do psychologists know about how we experience time?" I started trying to find out. I found out very quickly that they didn't know very much. But yet they knew more than musicians know. If you think about the fact that music takes place in time—and as Cage pointed out is almost preeminently an art of time—it's astonishing that musicians almost never talk about time. They talk about tempo and they talk about rhythm and they talk about length, but they don't talk about *time*. What kind of experience do we have temporally? And I became interested in that. In fact, *Blind Men* was the first piece that I wrote after having decided that architectonic proportionality[2] wasn't useful to me. Well, that wanders from your question of how I choose pitches.

It tells me the method you chose for your earlier pieces.

At this point, I still go about choosing pitches in one of two ways. But there is one arbiter always and that final arbiter is the ear, and I can not be convinced that some structure which has logical or other justification on paper "sounds good" even though I don't like it. I am either willing to approve it aurally or not. So the thing you do is to find a way of going about selecting pitches or durations to the degree that you need to deal with pitches. You go about selecting them on the basis of what gives you the best return.

2 Gerhard extended the use of proportionality derived from the row to multiple levels of formal structure architectonically: the largest divisions of a work, their parallel sub-sections, the further division of sub-sections in a consistent way, and so on.

That brings up an interesting point because there are many instances in your music where it seems that the effect achieved through what's written doesn't need to be as tightly controlled as you have chosen to write it. There is one place in Blind Men *where you have a thirty-second decrescendo for wind chimes alone and you provide nine exact pitches for the chimes and a graphic diagram of how it should decay. That, to me, seems very fussy.*

I can tell a story about myself. When I wrote *Quick Are the Mouths of the Earth*, I was in Italy and I had no prospects of it being performed. It was simply a piece I wanted to write to get some experience with a large chamber group and time dimension. It happened, though, that it was performed rather quickly in New York, and, a year later, I got a letter from Larry Austin, who was at that point at the University of California, Davis, and he asked for a score and I sent one and he wrote back that he was going to perform it. He wrote that he thought the notation was very "fussy." Such was my perspective at that time—working alone in Europe—just writing pieces literally in a vacuum without ever hearing anything I was writing: I thought the letter said "fuzzy." I read the letter to be a criticism of inaccuracy and vagueness in my notation. I look back on that with mirth now because I realize I was so into specifying things then that I thought that even *Quick . . .*, which now looks to me as being extremely detailed, was "fuzzy." So, certainly, at the time I was writing those pieces I had a less pragmatic view of things than I do now. On the other hand, I don't think I very often put anything in a score which couldn't have meaning. That is to say, it may not seem to be necessary to the effect that one hears; but I think that if it's done the way I've specified it as opposed to other ways, there is a difference.

My experience with serial or other similar methods, is that most composers take great liberties with the material they use. It seemed to me, looking at those nine pitches for the chimes, that they just happened to be "left over" at the end of one use of a row.

I don't remember—it could be. On the other hand, if there had been nine notes and they produced a sound I didn't find appealing, I would have changed one of them, or else dropped two.

That's what I was getting at; you stick to the letter of the law.

No, I'm absolutely shameless about systems. I use them only to the degree that they produce sounds that I like. Now that doesn't mean that they produce results that are immediately accessible and pleasant. I like the idea that systems—not just serial systems but any form of system that determines structure or procedure—resists what I might intuitively want to do. I don't think it's necessary to be talking about rows or notation in any traditional sense at all. If you make a decision about processes, the same is true; you decide that you're going to hold to a certain course. That course then resists decisions you might make for other arbitrary reasons, and I like that interplay between something which I have fixed and the way it resists something that I may want to do at a particular moment. In the end, if that "mo-

ment" in which I want to do something persists, then I'm likely to change the system to accommodate it. Or perhaps I'll simply "break the rules," and I think it's quite true when you say that almost every composer has taken liberties with systems and uses systems only as a stimulant because they "worked," and as soon as they stop working, abandoned them.

It seems in your more recent pieces that pitch is far less of a consideration than in your earlier work, but you still have to choose them, so what are you basing your decisions on?

I still deal with some underlying system. The most frequent procedure now is probably the one that operates in *I/O: A Ritual for 23 Performers* [1970]. That came about because I had nine singers, and I decided that each of them would have three pitches and that those pitches would be shared in certain ways. I also had the restrictions of the female vocal range, the clarinet, and the flute. I had certain information about instrumental multiphonics, but it didn't happen just by chance that the range of the clarinet and flute was the same as that of the female voice, if you take it in its widest range, from coloratura to contralto. I started considering all of the multiphonics that I knew, and I culled out those in which the pitches on the clarinet and flute matched. The pitch structure in *I/O*, then, is derived from a statistical consideration of the materials available until it is all worked out and there is a definitive graph. In fact, in the score there is a chart that shows those pitch relationships.

In other pieces it will be related to serial procedures in one way or another, inasmuch as the work deals with specific pitches as reference points (although there seems to be no music I write now that stays always on particular pitches; it's always wandering and glissandoing). Nevertheless, as long as pitch is around, you have to deal with it in some way. I have arguments with students here about this, because some younger composers are willing to ignore or at least take the position that they can ignore a certain parameter such as pitch, and it thereby becomes very offensive in their work. But if they took even the most simple-minded attitude towards it, "everybody has to play A," it then is "taken care of," and it doesn't get so much in the way of whatever it is that they really want to emphasize. I organize pitch in order that it not be disorganized, and not just because I feel a commitment to pitch or root movement. But it is true that on a large scale, quite apart from Schenker, a progression of pitch centers has an effect on us in the same way that a progression of shapes or colors or temperature or smells has an effect. So I always pay attention to that.

But you can't apply Schenker's ideas to any music written this side of 1900.

I haven't studied Schenker, but I believe that the idea that there are long-term "allegiances" to one or another fundamental element in an overall pitch structure is true whether you like it or not. It's true in all music that I know anything about. And even in African music, music that's primarily percussive; it may simply be a differentiation of "high" and "low." This factor is still there, and as long as the material

with which we're working continues to have that dimension, you have to pay attention to it. But, for me, you have to pay attention to *all* of the characteristics, and one of the most particular to me is the spatial position of a sound. It has now become as important to me as any other parameter. And if it's not feeling right, I'm bothered by it. It's one of the reasons that the project of putting my work on video, or into stereo recordings, is very unpleasant—although I agree with the purposes of distribution. So, in a sense it's true when you say that my music is concerned with relationships, but they are not relationships that are easily schematicized. Ideally, they have to be *experienced* relationships.

I'd like to ask if you feel that in exploring instrumental capacities you've discovered natural limitations in the same way that there are physical limits to how fast a runner can run a mile. Is that area of exploration "drying up," or is there always plenty of fresh information for you?

I'm constantly in the process of doing what we called earlier, "homework." I believe one must, in a way, nourish him- or herself, and at this point I can say that I don't feel anything is drying up, because I don't go back to the same water hole very often. I always try to revisit ideas or instruments or instrumental combinations from a different perspective. Certain combinations of sound, as in the Boulez *Le marteau sans maître*, are getting very, very tired. So many people have used it and continue to use it . . . It's not fair to say that a great new piece cannot be written that way, because it probably could be. One can imagine that there could be an experience you could very much enjoy related to that kind of combination . . . Okay, that's getting dried up; but, for me, if you explore the notion that I have drawn out of Cage, and you continually ask "why does it need to be this way?" or "why this combination?" or "why not *that*?"—then there are many things yet to be explored. I think it's possible to dry some things up in the sense that they become aural clichés, as is true of some of the early synthesizer sound vocabularies.

So, you are saying that in terms of where your ideas come from, the resources are not drying up; but your music has shown a definite swing in the direction of using electronic sounds and, less specifically, "instrumental" manners of increasing textural considerations. I wonder if you feel yourself shifting away from instrumental pieces and moving more towards electronics?

Well, the thing that's interested me in the last couple of years has been the voice, without any modifications at all. Of course, the sounds that you heard in *Still* are perhaps very unfamiliar but they are still done with the unaided voice. However, these sounds would not be usable were it not for electronics, because I have to first of all collect them, and in the case of *Still*, I did that by miking and recording. After they're on tape, there are all kinds of other things you can do with them. So, electronics, are very much in the picture for me—not just because they allow me to transform sounds but because they allow me to use sounds that would otherwise

not be available. And that's one of the powers of electronics that's interested me a great deal in the last few years. Not synthesis, but *specialized collection.*

That seems to be one area that Cage has drawn attention to—the amplification of small sounds.

Well, we have telescopes and microscopes, and it is odd that no one has made that transition . . .

Close-up technique in cinema has been around for years.

It's a natural part of what I do. Another thing, just to finish this quickly, is that speakers and tape allow one to not only store and use sound in musical contexts that would not otherwise be available, but they also allow one to present "total environment" situations which I find very attractive. In fact, I find it almost imperative at this point.

In your piece Threshold *you describe the underlying ideas to be firstly gradual change, and secondly, abrupt change. Those two ideas seem to be the main concerns of composers in the pure electronic field. For example the "phase" and "drone" on the one hand, and the fast gating techniques, where as little information as possible is given as quickly as possible, on the other. Of course that's a generalization, but I think it's basically true. I want to ask you how much you have benefited in your instrumental compositions from the knowledge of electronic techniques and the formal ideas they produce?*

Tremendously. I wouldn't have thought of it as being especially related to *Threshold*, but it may well be. Why not? Slow evolution, and sudden change—those are things that electronics have given us access to. And they are things we also become aware of because we are unaware of history and because we are conscious of the disjunctions of daily life.

Can you talk a little about Ping, *which is based on Samuel Beckett's text of the same name?*

It seemed to me that one of the most essential concerns in this work of Beckett's was to preserve the ambiguity of direction, or of implication, in terms of the way words went together. It occurred to me that the only way to maintain this ambiguity would be to have the words presented in such a way that they happen differently within each viewer. That brought forth the idea of visually projecting the text, and then I thought, well, if I'm going to project the text and have visuals, there ought to be a visual counterpoint of images drawn from the text. So that led me to the idea of either using slides or a film. What I really wanted was a dancer with closed circuit TV, but at that time it was much too expensive. Now, it would be easy to do. But in the sixties in Japan, to have a closed circuit TV was about eight-thousand dollars a day, and it was as big as a Mack truck! So I was stuck with the idea of a film, but I didn't know anything about films. I then decided to write a scenario in terms of fifteen-second blocks. I specified everything. It was all done with constant slow zooming and panning. I built the box into which the motionless figure was put.

Through friends, I found a cameraman who had worked with Kurosawa but who didn't speak any English. Everything had to be explained through the scenario in Japanese. And it was the same with the Butoh dancer, Seikiji Maro. He was in a very strange theater company, and was known for running through audiences—across the chair backs—swinging a samurai sword. He also spoke no English. My conferences, sitting down and talking to the actor and cameraman, were very funny because they thought I was completely mad; but they did, nevertheless, what I asked. I controlled the film completely—the lighting, the camera angles, the shots, the focus, the panning. Everything was specified. Maro just stood there in the box, and I would occasionally tell him to blink or to do this or that, but generally it was just a matter of being motionless for hours. And under ten-thousand watts of light. They had these big, old lights operated by rheostats. It was bizarre. Then, cutting it was unbelievable; doing the editing, again, with people who didn't know what I wanted and had never seen a film that looked anything like this, because it was twenty-two minutes of no movement of all, except for the camera. I liked working with them very much. Everything was pre-taken with regard to fades, et cetera. Everything was done with light in the filming—no opticals at all.

But you had to add the sound track didn't you?

No, there is no sound track. There are three elements to *Ping*. One is the image, one is the text which is projected and which is actually performed. There are one hundred and sixty slides, shown from left and right projectors which fade in and out and use colored filters, prisms, and so on, in accordance with the score, which tells you when you can use which colors and how many are allowed for each sentence of Beckett's text. Finally, then, there is a tape and a live, improvised instrumental performance; but the improvisation is within a certain set of restrictions.

It seems odd to me for you to describe this piece as being lavish because a lot of what I feel Beckett says is said through sparsity of means.

But sparsity of expression is not the same as sparsity of experience. You're certainly right that Beckett is very economical with his means, I think that's a limitation. It's a limit of Beckett's that you as a reader, are expected to donate to the result. He's certainly talking about things that are anything but modest in their implications. Peter Yates [the critic] wrote me a letter after seeing *Ping* performed one time in which he said it was something like being "seared under a broiler." And he continued to say how he imagined a pork chop felt. He liked it because, as he put it, he had often had the feeling that Beckett was pointing in this direction but never actually delivered the experience. His feeling was that, as a reader, he somewhat regretted that Beckett did not go far enough in delineating his intentions, and he [Yates] was never confident that as a reader he had projected, as it were, the right follow-through. *Ping*, like so much of Beckett's writing in that period, was concerned with personal loss, with pain, and with the inability to know where you are, what you are there for, what you are doing, where you've been, or where you are going. I wanted

to deal with that world, and to intensify it. I wrote to Beckett and we corresponded about it, and he approved everything. It was quite amusing because as you say, in terms of lavishness, I would write a three or four-page letter and he would write back a postcard. Finally, he wrote, "Dear Mister Reynolds, you have my permission to proceed—Samuel Beckett."

Extending Instrumental Techniques

by Paul Robinson

In his book Mind Models, Roger Reynolds sets out to explain recent, changing views of artistic experience. He draws from a wide range of sources including psychology, acoustics, electronics, fine art, biofeedback, theories of time, Asian spiritual practice, sound location, John Lilly's dolphin experiments, biological rhythms, and more. His musical thought primarily derives from these studies and attempts to make aesthetic inroads based upon them. In this context Reynolds writes:

> Historically, composers and sculptors have moved rather easily to develop and master the influx of new ideas and technical developments, for the pace of their time was moderate. This is no longer the case. In the past few decades, the range of potential has spread almost virulently. Many artists have been left helpless before the complexity of unfamiliar perspectives and technologies, ignorant of their promise. (*Mind Models*, page 147)

In his composition . . . *from behind the unreasoning mask* [1974–75] for trombone, percussion, and four-channel tape, Reynolds concentrates his attention on time experience and various modes of response to repeated events.

The compositional method used might be described as "process music," although this is a little misleading as that term is normally reserved for freely evolving compositions. Reynolds' score is fixed and precise, but the method used is akin to "live" process pieces. A set of conditions is agreed upon (in this case arising out of a quotation from *Moby Dick*) and during the course of the piece the various factors work themselves out in relation to each other.

Reynolds creates a dramatic situation in the piece by scoring for two live performers and a four-channel tape recording. It is the tape that represents the "mask" (the unconscious) against which the live performers respond. The tape is composed of series of transients. In his sketches, Reynolds dwells on the word "transient" (indwelling or outgoing) as being "impermanent" or non-periodic. What is it that provides permanence?—"the key to permanence is repetition." Repetition is classified into types: regular, irregular, trending. It seems that at this point in the evolution of his ideas, the use of a tape occurs—"a collection of transients on tape (for vividness, special perspective, and security) . . . they are cues, how can they function?" This leads to the conceptual foundation of the piece. The transients function to begin, interrupt, redefine, end. What attitude can the performers assume? Reynolds chooses three possible response "modes": yogic—no response; Zazen—always the same re-

sponse; normal—by which he means the Western response: a gradual trailing off of interest in something repeated. These three response modes are directly based on scientific observations described in *Mind Models*. A representative from three groups, normal, yogic, and Zen, submits to EEG tests. Loud bursts of sound aperiodically interrupt calm with the above results.

Another, and more personal, analogy to the "mask" that the tape represents is found in Reynolds' sketches: "living near the ocean ... sense of long periodicities ... sense of something with authority, the nature of which cannot be easily discovered." There are two types of transients on tape. First, there are six loud and unique transients occurring simultaneously on all four loudspeakers at 3'20" intervals. These are from acoustic sources—as are all the sounds in the piece—recordings of large, found metal objects: an open short spring, a buzz spring, a noisy cymbal, a butterfly aluminum plate, a short spring, and a brief rattle spring. The transients that result when they are struck with a hammer occupy only their own natural decay times. Secondly, there are other, trending "series" of transients which make up the major body of the taped material. The sound sources for these are classed as follows: wind (trombone); string (piano); wood (claves, marimba and other wooden percussion); stone (marble chimes, rocks); complex metal (springs, plates, *et cetera*); pitched metal (crotales, glock, vibraphone, tubular chimes). It seems that the composition of the tape material preceded the instrumental parts in that the trombone and percussionist's material is often derived from the tape.

So, we have, so far, a potentially dramatic situation in which players are given material with a choice of responses—the sense of mental attitude—towards the authority of a fixed tape. Charles Ives' *The Unanswered Question* has a similar "background"/"foreground" aspect to it. A string orchestra plays a curtain of major and minor chords representing the infinity of space. A trumpet asks "the perennial question of existence" with a short phrase, and four flutes take up the issue without arriving at any solution, the curtain of chords remains unaffected by any of this. Perhaps this was the original "process" piece?

Pitch organization of the Reynolds piece is dodecaphonic. The tone row used contains only major and minor seconds and one minor third, providing an evenness of harmony and avoidance of tonal implications. Only five versions of the row are used in defining the transient series. The range of each set is organized so that successive series begin higher and end lower; each has a downward-moving tendency. As the rhythmic units expand (this will be explained later) repetitions at some pitch levels becomes necessary to fill in the expanding space. This also has the function of giving the performers more complex tasks to perform in response to the repeated transients.

During the period in which Reynolds wrote *Quick Are the Mouths of the Earth*, he was using serial procedures to determine rhythmic structure at all levels. He has abandoned that manner of rhythmic organization since it seemed unresponsive to

the way we actually experience time. In . . . *from behind the unreasoning mask*, Reynolds favors a geometric organization of time and chooses proportions that form slowly expanding temporal series. For example, the first time series on tape is the wind series, and it has these proportions: 1.33, 1.67, 2, 2.33, 3, 3.67, 4.5, 5.5, 7, 8.5, 10.5, 13, 16, et cetera.

Reynolds has a unique method for arriving at these series. Using logarithmic graph paper, he draws a diagonal. The vertical axis represents time and the horizontal axis provides equal spacings which allow him to read off geometrically related time measurements. He first decides on the total length of time that the series must add up to and then plots a point on the diagonal that should give him that measurement, approximately. Once points have been marked on the diagonal (at, say, half an inch intervals along the horizontal), he reads off the time units and adds them together and checks them against the desired total time. Say, for example, that 200 time units has been decided on as the total length of a series. If we take readings at half an inch intervals, we get 0.5, 2.4, 4, 6.3, 10, 17, 27, 44, 72, which adds up to 183.2. This is a little low, so if we take each reading 0.10-inch further along the horizontal, we get 0.6, 2.6, 4.2, 7, 11.2, 18, 30, 48, 80, which adds up to 201.6. Compensation is needed, but this result is acceptable. The first time series actually used in the piece totals sixteen minutes, the length of the entire piece. The remaining five series (string, wood, stone, complex metal, pitched metal) have overall lengths that are progressively shorter, so that they start at later and later points in the piece. The last series, pitched metal, is less than six minutes, starting at 10′23″.

As with common serial practice, the results are tailored to suit the needs of the composition. Judgments about the kind of results wanted are made prior to the calculations on graph paper. One such judgment was that at a certain point in the tape, Reynolds wanted very little activity, to allow the instrumentalists to penetrate the mask. He manipulated the series and their placement such that from 7′50″ to 9′40″ each of the series in progress coincides with a measurement of 110 seconds. Using this method of series derivation, it is easy to see the kind of results you will get with a certain diagonal. If you begin higher on the vertical, but have a gentler slope, you will start with larger figures but not increase them as fast. If you want an exact augmentation or diminution of a series already taken, you can draw a line parallel to it starting higher or lower. The way a temporal series functions in this piece is rather like pebbles thrown into a pool in slow succession. The rings are closer together at first and slowly become larger. By the time the last pebble has been thrown, the rings from the first are faint and widespread.

Within the six classes of transients, I have already mentioned that repetitions of some pitches became necessary as the time proportions increased. This gives rise to two further distinctions in this secondary [regular] class of transients (the primary ones being those at 3′20″ intervals): between unique and repeated ones. A chart of possible speaker-locations, sequences, or paths, is drawn up going from simple to

complex: AB, AC, AD, through ABCD, BCDA, CDAB, et cetera. Each member of a transient series is assigned a particular rotational pattern. Choices are based on a counterpoint that constantly shifts the sound, but rarely leaves any one loudspeaker idle. For each transient, a balance is maintained between simple and complex movements. For example, the eighteenth transient in the wind series (an F on trombone) has the following movements: BDA, BCDA, BCA, BCD, AB. It forms a counterpoint with the incoming string series in a complex way. The wind series has now reached expanding time proportions of one minute or more. The string series, however, is just starting. Between three and five minutes, the wind series contains only two transients, 18 (F) and 19 (G). The string series forms a counterpoint with the wind, but also with itself in that transients 1, 4, 6 and 9 are repeated at regular intervals and have their own speaker movement, contrary to that of the unique transients 2, 3, 5, 7, 8. A table of speaker movements in Reynolds' sketches was used to maintain a uniqueness of effect—since some pitches are repeated. No two identical speaker movements are used throughout the piece. Significantly, the movement around the speakers also makes the cueing for the instrumentalists easier, since they learn to expect cues from a specific location.

As I have mentioned, all the sounds on tape come from acoustic sources. The only modification of them comes from octave transpositions (halving the tape speed) and splicing tape to the required proportions. Reynolds has a good ear for acoustic sounds that seem to originate from electronic sources. This is true even of some passages for the trombone and percussion. Reynolds has done much work with new piano sonorities—modifying conventional sounds with picks, paper clips, combs, et cetera. The string series on tape is all derived from piano sounds and all from the inside of the piano, either directly or from resonances set up by playing other instruments into the piano with the pedal down. In the percussion domain, on tape and "live," the composer uses extended techniques such as bowed marimba, bowed vibraphone, superball mallets rasped on a bass drum head, bowed tam-tam, knitting needles on vibraphone and glockenspiel, and more. All of Reynolds' music has the element of extreme demands made on the performers' technique. From his sketches, for example: "Non-synchrony of action by players, also extremes of taxation—breath (trombone), attentiveness (percussion)." Reynolds has mentioned that he did consider not writing parts for instruments but simply describing verbally the kinds of response to the tape that he wanted. He is philosophical about the eventual (scored) outcome. He points out that in his experience, he was always more able to get that "something extra" out of performers not by giving unlimited freedoms but with specific tasks. For the instruments, the piece is divided into four areas. Each area is typified by a set of conditions. For example, Section One:

> Explore functions of transients (have early interruption of tails).
> Explore contrast of resonances and silences, that is, sometimes just let things ring without interruption.

Explore possible ambiguity between percussion and trombone.
Explore irregular (non-referenced) rhythms.

Reynolds says in his score instructions: "A constant interplay of changing attitudes is inherent in the score: between the players and the tape, between the three players (a percussion assistant is required), and between different aspects of the actions simultaneously performed by one performer." The last point here gives rise to some of the most challenging passages of the piece. A passage for percussion soon after the six-minute mark requires the performer to play an accelerando with one hand and a ritardando with the other. A further example, in the trombone part at fifty-eight seconds, asks the player to perform a sforzando repeated note changing the slide position to another location that provides the same pitch. It is this kind of writing that Reynolds describes as "non-synchrony of action." He focuses a great deal of attention on the kind of mallets used by the percussionist, sometimes asking the performer to play a passage with unbalanced pairs of mallets. This also produces a non-synchronous sound.

Looking more closely at how Reynolds specifies the reactive modes in the instrumental parts, the beginning of Section Three has an example of a "normal" response in the trombone part. The instruction reads, "begin with effort to repeat exactly/capitalize on slight irregularities while retaining the basic form." In other words, a gradual trailing off of interest in accuracy is planned.

An example of the Zazen response is found in the trombone part at four minutes. Here, the player must attempt an exact, unchanging, and complex response to the repeated tone on tape. Concerning the way in which the performers react to the tape over its complete length, as the tape [the unconscious mask] gradually builds up its density with more and more sustained tones, the instruments become more aggressive in their effort to penetrate, ending with a dramatic and exasperated attempt by the trombone player, beginning on a B-flat very high in his range and very difficult to play at this point in the piece. (Fatigue is a factor.)

There is a convincing blend between the tape material and the instrumentalists to the extent that it is often (and intentionally so) hard to tell from where a particular sound originates. This arises from Reynolds' concentration on "electronic"-sounding acoustic sounds and the way in which the pitched material for the instruments is often derived from the taped material, producing resonant doublings. Reynolds achieves a complex harmonic structure by concentrating on sounds with these qualities such as multiphonic glissandos (humming and playing the trombone at the same time).

Although never reticent about going into the philosophic and technical background to his works, Reynolds nevertheless emphasizes that such research only acts as a "stimulus" for composition. If a particular method obstructs the desired outcome, it is either altered or discarded. Throughout his career, Reynolds has been in-

terested in the spatial element of musical performance. In *Quick Are the Mouths of the Earth*, associations among three groups of players are made by common tones passed between them. More recently, Reynolds has employed four-channel systems—quadraphonic sound. Working with the Experimental Vocal Techniques Ensemble at UCSD, he is presently involved in a project generically entitled *Voicespace*. Here, Reynolds' intent is to make aesthetic translations from information gathered about the movement of sound in space into his music. He seems to regard this work as his "private life" in composition. It is certainly strongly related to the aims of the Center for Music Experiment and Related Research. Two compositions in the series have been completed so far, *Still* and *A Merciful Coincidence* [*Voicespace II*, 1976].

Still was made primarily with the voice of Philip Larson who has developed a capacity to produce controlled glottal clicks ("vocal fry") at even slower rates than one-click-per-second. A primary intent of this piece was to create convincing spatial illusions. An important prerequisite for this was that the piece be heard in total darkness, as visual contact with the loudspeakers tends to identify the sound source (in the listeners mind) too closely to the loudspeakers, whereas in total darkness it might seem to be elsewhere. The piece uses a text by Samuel Coleridge Taylor—*The Wanderings of Cain*. This text in itself has a rather strange Beckett-like, spatial feel to it. A description of the research upon which this piece is based is impractical here but a paper has been prepared by Reynolds and is available from the Center for Research and Computing in the Arts at the University of California, San Diego. Reynolds found the "fry voice" (as he calls it) of Larson ideal for this composition for the following reasons: they allowed the imposition of a gestural and non-phonemic succession of intervals upon the words of the text, and they were easily transformed into control pulses, triggering processing devices. Reynolds takes great pains to plan exact aural illusions based on an "ideal listener diagram" (next page).

This diagram pictures a central and directionally oriented head (the pinna are critical to front-back discriminations, and for even general control over effect, so the composer must assume a listener orientation). The continuous inner square with schematic speaker enclosures at its corners represents the natural or assumed spatial norm. Inside this is a dotted square suggesting a more compressed "host space" (deader, more high frequency emphasis, possibly louder). The outer, thicker boundary symbolizes the limits of aural perception (bordering on inaudibility) while the thinner border just within it indicates a sense of enormity (open distances, cathedral-like resonant volumes).

Recent contemporary music has had a history of a similar concern with ideas deriving from rapidly expanding technologies and the associated research. Composers working this way have to make careful musical translations in order to avoid either obvious, one-to-one correlations or obscuring matters. In . . . *from behind the unreasoning mask*, Reynolds, I feel, is successful in that there is a convincing bond be-

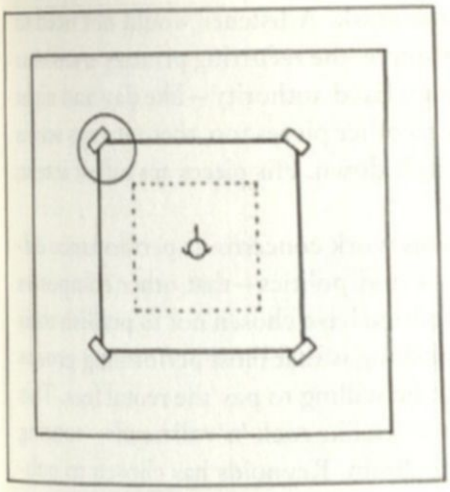


Figure 3-1

DEsolate

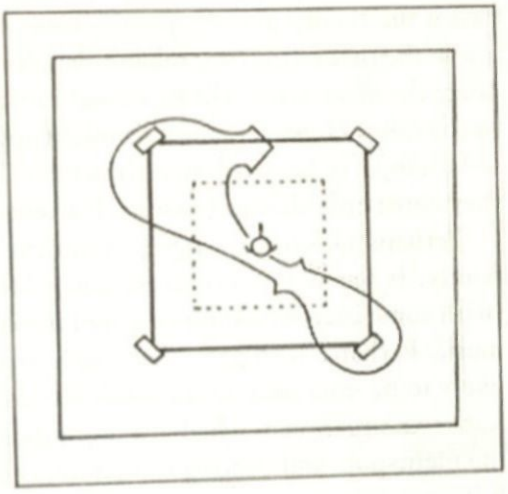


Figure 3-2

dEsolate

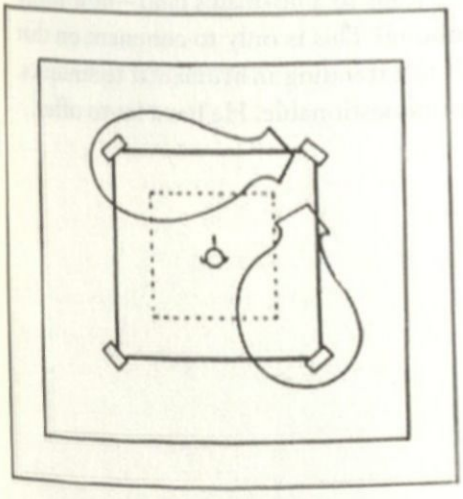


Figure 3-3

dEsolate

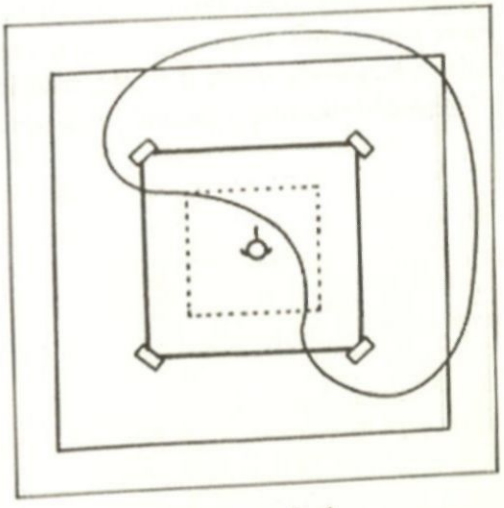


Figure 3-4

dEsolate

Spatialization notation for four stages in the evolution ofone extended word ("desolate") from *VOICESPACE I: Still* (1975), by Roger Reynolds

tween the theory and the poetic image of the mask. A listener would not need to know the theory to comprehend that, for example, the recurring primary transients affect the direction of the piece and represent a fixed authority—like day and night or the tides. However, and this might apply to other pieces too, there always seems to be a logic in his work that sometimes loads it down. His pieces are full of intent; they constantly demand one's full attention.

Perhaps a more far-ranging comment on his work concerns its performance difficulty. It seems for several reasons—lifestyle and politics—that other composers (with some exceptions) represented in this volume have chosen not to publish their music. Perhaps the biggest drawback to publishing is that most performing groups likely to be interested in the work would not be willing to pay the rental fees. This leads to a situation in which these composers work like rock 'n' roll bands—touring the nightspots and putting out an occasional album. Reynolds has chosen to publish, or in other words, to make his music performable without his presence. However, he seems to suffer the same lack of exposure that others here [in the United States] experience, but for different reasons. It seems to me that his music is too hard to put together at a time when younger composers are no longer equating virtuosity in compositional technique or performance with innovation in the arts. Surely there will always be new and highly skilled performers rising to the challenge of advanced repertoire, but to me, this circle of challenges leads to a no-man's land—how many more new sounds can you get out of a trombone? This is only to comment on that side of Reynolds' work that addresses itself to extending instrumental techniques. His general thoroughness and precision are unquestionable. He has a lot to offer.

Landscape with Terry Riley

I've been thinking, since you told me that you were born around here, that there's always that mystery about where one's roots are. I hadn't thought about that very much, except that I was noticing more and more that wherever I was I never really felt at home. So there must be somewhere that you feel at home.

That's true.

You come back to that place.

Well, I think generally I feel that it's the West Coast. I've always felt very good living out here. Especially in San Francisco and in northern California. I was in New York for four or five years, and I really felt transplanted. I loved many things about New York, but my mind was always coming back here. I'd dream about just being here and long for this kind of environment, and then I would walk outside and there was the Bowery or Canal Street, you know. But New York has this other energy that, of course, is very important for an artist. At least it was at that time.

Any sort of center like that pulls all of the energy together.

I love to go there and play a concert and do something.

You still go back a lot, don't you?

I'm through New York a lot, and sometimes I stop for a few days to see La Monte and Guruji.

Could you say something about your relationship with La Monte?

La Monte and I met in Berkeley in 1959 or 1960. I can't remember which year it was but it was around that time. We were both graduate students there, and he was, of course, the weirdest guy there—the most strange and bizarre in his music and ideas. I was immediately attracted to what he was doing because during the time when you're a student, every new idea that's coming in is devastating. You know, when you're discovering ideas that you had never heard about and that were different from the next person's, you go through these phases of being knocked over. We were the same age, and his ideas had that effect on me. Perhaps even more so because I actually felt my whole life as being very close to what he inspired. These long durations, his way of approaching the tones, and really getting into them. So I went to the composition seminars and of course La Monte just never fit in. Most of the people in the seminars thought he was completely insane. But we started working together and we did a lot of playing together and improvising—at that time, just exploring acoustical sounds, because electronic music was just beginning to develop. At that time there were no synthesizers and . . .

. . . no electric keyboards. You were playing in a kind of jazz medium. I've always thought that La Monte's improvising was so much like jazz.

No, actually at that time I was not doing jazz. I was really into playing classical music. I was playing a lot of piano, and at that time still playing Bach, Webern, Schoenberg, Bartók, Milhaud . . . I was very interested in the piano, and La Monte and I used to play two pianos a lot together at that time.

In the duration style?

In a kind of free improvisation. There were other people too at that time. Dennis Johnson and Terry Jennings used to come up from Los Angeles, and we would do concerts at Hertz Hall. La Monte organized some very strange happenings there.

Burning violins. But you know, to me your music has a jazz feeling. Do you admit that? Are you interested in that idea at all?

I think so. I've thought about that before—what it is. Jazz is a very broad term, and I think that question is part of it. It seems to me that the land you live in has a very heavy impact on your music. The rhythms of the land that you live in, the way that the sun affects you, and the ground and the trees . . .

The earth affects you.

And in this part of the world, and in America especially, there's definitely a certain kind of energy which is hard to avoid. It magnetizes us in a certain way, and I think that jazz developed in this country because of those energies. First of all, because the black people were transplanted here, and since they were just lifted out by the roots, they had to develop their culture again. And then, because of their sad feelings and everything, they picked up that energy from the land and developed gospel. And later that developed into a kind of improvised music, and eventually it evolved into the broad forms that we have today. And I think that there were so many factors involved, that it can't be reduced to just one thing; many, many things came in to form their musical ideas. I certainly feel that the flow and energy of the music has affected me.

Your interest in Indian music always makes me expect you to be more influenced by Indian music. I'm always surprised every time I hear your music to find that American feeling. That jazz feeling is so strong in the music.

Actually I think that many aspects of Indian music have entered into the work that I'm doing, and I find them to be natural and very beneficial. For instance, take the example of India itself. It has an on-going, continuing culture that's thousands of years old. We don't even know how many thousands of years of development there were without any change like we have here in the West, where one composer topples the one in front of him with a new revolutionary style. In India, at least more or less, you had each musician building on what came before. So the raga wasn't attempting to destroy what came before it, but rather, to actually become increasingly rich. When the Moguls came in, they brought the Persian culture to India, and Persian instruments and the Persian language. But it was absorbed, because India's culture is so old and built on such really sound principles, that it couldn't destroy what was already there. I think that's an example of a culture doing that, and if a person, in his work, has a very strong idea about what he wants to do, it's the same way. Although many cultures and ideas will come in, he can keep an on-going direction to his work. I think that is what has happened for many Americans. They don't just do Indian music, but they recognize the good things in that music, and they learn what they can use, and what they can understand, and what they can incorporate.

The tuning systems and the rhythmic figures are sort of obvious influences. I don't know as much about Indian music as I should for this question, but do the forms of your pieces come out of an Indian formal tradition?

No. I was doing those forms before and I haven't changed them too much because of Indian music. It's not possible to do the real essence of Indian music. It's not possible to do the real essence of Indian music on the organ because in Indian music, the main essence is that of alop, which is the manifestation of the atmosphere of the raga. That's the slow section in the beginning when a musician first starts to sing or play. In that section you have whatever shapes the notes take and the particular melodic forms characteristic of that raga. The musician has to manifest the atmosphere of the raga or manifest the deity. Each raga is actually a manifestation of some divine essence, so the first principle is to create and to establish this. The music is very linear and serpentine. Westerners tend to think more in steps, like pyramids being built. But Indians think about musical forms as being linear, because you're always moving in this serpentine manner. So, because I play the organ, which is an instrument built on steps, it's very hard to do anything that's really like Indian music. What I try to do is to manifest an atmosphere with the organ that captures you right away.

Do you mean technically hard, or do you mean that the instrument should be melodically inflected more than it is?

Well, some people have told me that you can build an organ in such a way that the keys can all move from one to the other smoothly. There's actually more involved in it than that, and I'm not certain that the organ is the right instrument. I think that organs do what they do very well, and to try to change their nature into something else is not necessary. I mean, they can create a very cosmic, universal sound that is really beautiful. From the time of their beginning, organs created a fantastic atmosphere. So my aim isn't necessarily to change the organ that much, although I think certain things can be improved, too.

I was just wondering about that. Your statement about creating the alop in Indian music. Is it a matter of inflecting the pitches or a matter of the order of the pitches? Not so much in Indian music, but in your music.

In my music—my music (!)—in this music that I'm doing, it's hard to actually describe any one thing that makes it happen, or to express that feeling. But I think that a lot of it has to do with the designs of the integrated patterns and the way they move against each other that make an effect that a person can visualize. You don't necessarily have so much of that in Indian music, although it does exist in certain forms, like when there are groups of percussion instruments playing. Maybe it relates more to other music, such as Balinese or Javanese.

Are those long statements in your music that are made up of four or five figures improvised, or are those relationships fixed in some way?

They're improvised. The way I work is to develop certain patterns. I practice these for a long time, just in their straight form, like an exercise. And after a long

time those patterns start ingraining themselves in my consciousness and develop into new patterns. And so after a while, the old patterns almost become forgotten, and sometimes the difference in the pieces is the evolution of the patterns—how they develop into a new shape. So that, for instance, I'm still playing a piece today that I was playing in 1966, but the original pattern has disappeared. It's convoluted into an entirely different shape, so, even though I consider it the piece that I was playing in 1966, it's different.

I understand what you're saying. But when you start on a pattern like the ones that we'll be recording, there's a very definite pattern that seems to develop, and I can't tell whether it's just an enlargement of something you've already practiced. So each of these long statements is an original statement for that moment.

Right. If there was a way to go back and listen to a lot of recordings, and compare them, they'd never come out the same because they are improvised. The continual on-going differences of form is one of my main loves. I think it's fantastic. Certain moments can create a whole different viewpoint of those patterns.

The organ that you use, though, is special. It's tuned for each of the pieces that you play.

It's been modified so that it can easily be tuned, and since all the music I play is modal, set in a fixed mode, there's no major modulations that would involve a change of tuning. So the most practical way to do it is to fix the tuning in the actual intervals that you want, instead of accepting the equal temperament, which is designed for modulations.

Is there some hierarchy or some meaning to the key that you pick for a particular piece?

Yes. It seems like certain areas have resonances that enforce the atmosphere of the pieces. And I find that if I try to transpose a piece—which I have sometimes done—into another key, I don't like it as well. It doesn't resonate with the same power. So there are certain areas that help.

Could we talk a little bit about your singing? I wanted to ask you about your studies with Pandit Pran Nath. Could you talk about that?

Sure.

I'd like to know what you intend to do with the singing. One time you told me that you felt one responsibility of the singing was to preserve some of these musical traditions that were thousands of years old, and that you imagined would be taken to different parts of the earth, but still preserved in some way.

That's true. Actually the music of Pandit Pran Nath that I'm studying is, even in India, a rare type of tradition which as far as I can see, he's the embodiment of.

He and he alone?

Yes. The major disciples of that tradition have all passed on. So that's why there are many efforts being made today to try to preserve, even in recorded form, some of these rare compositions. Nobody could write them down, and there was no way

to preserve them in any form before phonograph and tape recordings. And many of those musicians wouldn't allow that. There are strong feelings about spontaneity and improvisation and using this music for devotion to God, instead of entertaining people, which prevented them from doing any kind of recordings. So, I really feel strongly that this is one of the most important musics. Its effect on the being of people who experience it, either listeners or performers, is really profound. And the thing is that of course it's impossible to learn it all. Pandit Pran Nath was saying that each student only learns a little part of what his teacher knows. So it's a diminishing thing anyway. And we're Americans, and we started late, and we don't have access to all of the music, so that means that we'll only be able to preserve some aspects of it. But there are certain things about the music which I think are possible to grasp and to transmit. And that is the approach to tones, the approach to the voice culturing, and how to produce the sounds in the body, which goes back into yogic techniques of creating sounds. These things can be learned. Of course, all the ragas and all the compositions, that would be too many.

He must know hundreds.

He probably knows about three hundred different ragas, and perhaps six hundred compositions.

How does that differ from other Indian music?

Primarily the differences can be heard in the attention to the really elaborate detail of the raga in the grand tradition. It's hard to explain this if you're not familiar with a lot of different musicians, but most Indian musicians don't know all of the different places in the notes—the minute areas to move into to create these really profound effects. They stay primarily in the centers of the notes themselves, and the move between the pitches is not as elaborate or meaningful. Many ragas have the same scale, for instance, *C, D, E* flat, *F, G, A, B* flat, *C*, right, which is our Dorian scale. But in India this is a parent scale for many, many ragas, and all of these ragas have their own characteristic shapes, so that the way you move between these notes has to have a special effect. And that's what he's a real master at. He's preserved them all. He can improvise for hours on each one without repeating himself. It's an incredible, complex thing, and I'm always staggered by it. And this was the grand tradition. As far as I can tell, he's about the last one.

In other words, the line is getting very short now. But are there people who are his colleagues, in the sense that you are a colleague of mine?

No. There are a few, but I don't think that they are as advanced as he is. You see, he lived with his guru for twenty years. I consider him one of the few musical geniuses of the time. I've never encountered a musical mind like his. He's just entirely devoted to music; he never thinks of anything else. And having all this talent to absorb things is in itself rare. I just never run into musicians like that, and so he doesn't have, as far as I can see, any other colleagues. And the other traditions that I've seen in Indian classical music don't have this degree of attention to the detail of the raga

either. So to my view this is the end of this particular line as far as most of the body of material is concerned. It would have to be rediscovered or recreated.

Do you intend to sing in your style?

I don't have too many intentions as far as the music goes. I do sing a lot, and most of my practice is singing practice. For me it's a devotional exercise. Music is my spiritual path. It's my way of trying to find out who I am and what the nature of being on this planet is. And so singing is in some ways the closest contact to that because the voice is so directly connected to the soul. I would only want to do it in public if the spiritual feeling was right and if it felt like it was really a devotional exercise. I wouldn't just go out for money and sing because to me the work itself is the most important thing. Singing is really very closely connected to the being, and especially so in this music. As you sing this music more and more, it actually changes your attitude toward life. You become quieter and more alone and more introspective. Another reason that I came out here was because I found that I couldn't really do the music in the city. There was too much artificial stimulation. You know, telephones, radios, things always going. And to really listen to the tones carefully and to tune the tamboura carefully and to really listen, you need quiet. As long as I can study, I would like to continue doing that, and learn as much as I can and try to develop it and pass it on to other people who want to do it.

Do you teach that now?

I teach a lot of vocal music, especially when I'm at Mills. I really enjoy it, and I like to see the effect it has on people that get involved in doing it too, because it's a very engaging thing. A person starts sitting down with a tamboura every morning, listens to his voice, and really starts discovering things about himself, and the sound in his body.

Is there a tradition for there being an obligation to teach? Do you feel, for instance, an obligation to pass it on to someone else? You know, in the West there's the tradition of not teaching. The unexplained music. And I wondered, it seems to me that in Indian music there's more of a tradition of explaining the music.

Well, there is, because you see, it's so difficult in the first place that you can forever explain it and it would still be a great secret. And because it's such a difficult task to develop, it's better to start by explaining. And again, in its most effective state it's a spiritual communion. In the best lessons, the student and the teacher are in a state of God intoxication, because you're dealing with the raga. And it's not like a music lesson; it's like something else. I find that teaching students who feel this way is just incredible. A lesson with Guruji is one of the greatest moments of my life—when he opens up something for me that I never could have imagined.

So you'll keep on teaching throughout your career?

Absolutely. In fact teaching and learning—and Guruji says this too—are the same things. Teaching is a learning experience because in order to teach you have to examine the thing very closely. So you're learning yourself what its nature is.

There's been a kind of paranoia, or sadness, about so many American composers who feel that their teaching is an unwanted obligation; something that they really shouldn't be doing because they feel that they should be doing something that removes them from that, or frees them from that. But I haven't sensed that in you, or in so many people that I know who teach with a real devotion.

If you're a performing musician and you want to keep developing, you have to guard a certain space for your own development. I mean, if you've taught eighteen hours a day before you were really developed yourself, there'd be certain aspects of your own training and your own learning that couldn't be accomplished. So, I like teaching, but of course, up to the limits where I can still do what I want to do.

The limits are . . .

Time.

Time and the amount of energy it takes, and what that relationship does to you.

Right. And also, I'm mainly interested in teaching people who are attracted to the ideas. I mean, I don't want to go out like a missionary and hit people that aren't interested. That would be a waste of my energy. If people are already making steps toward this, then it's a good idea. But otherwise, it just takes too much energy.

Besides your own playing and your studies with Pandit Pran Nath, do you listen to other music? Is there a schedule that you have for being in touch with other music?

Listening goes in periods. There are long periods where I don't hear any other music, and I purposely do it just to try to come in contact with whatever inner music is going on, and is filtering through. When I'm on tour I get exposed to a lot of other people's music. You know, you're staying at someone's house and they want to play you a record of some musician they find exciting. So I tend to hear more music when I'm on tour than when I'm at home. It's interesting. Tour time is always a time of new impressions. And it's good too, because you're playing yourself, and it's a very vital time of being in the world.

I guess I don't listen to music at all now. I don't have a hi-fi or anything.

If I don't feel to inspired and I want to take some energy from another musician I'll sometimes go and listen to a record that I really like, and then, when my mood is lifted, I'll go back to work. It's nice. There are a few recordings that I listen to over and over again.

What are those?

Guruji's tapes of course; they're my main love. And the others are mainly of Indian music as well.

Is there any kind of music that's close enough to the music that you play on the organ so that you feel related to it, or that you are interested in?

No. I don't take inspiration from any other keyboards. Especially at the present time. Perhaps earlier in my life I did, but right now it's its own cycling machine. I really have to work everything out through the ideas that are coming out of that piece. There are other things that I hear occasionally that I find quite good. And

there are groups that are starting to work with these ideas, but because of their feeling and everything, their direction is different. I think that as you get older, and your own work starts developing, it almost compels you to follow certain things in it. At least that's what I've found. It's like building a house: you can't suddenly just come out and start building off to the side. It has its own on-going structure.

I've noticed that the people whom I've been thinking about these last few years seem to share that feeling. Everybody seems to have that same feeling of wanting to pull in and develop some personal part of themselves. But there's also a very strong tradition for just listening, in jazz for instance.

Most pop musicians I know have stacks of records, and they listen to all of the other groups.

But in Western classical music you listen to a lot of music too. It seems to me that one of the characteristics, one of the parts of the way this music has developed, is that kind of very private quality of all the people who are trying to develop something on a very, very personal level Are you working on a new piece now? You mentioned that you've been playing one of the pieces that we recorded since 1966. Was that Rainbow in Curved Air?

Yes. I played one of the on-going versions of that yesterday for the recording.

You mentioned to me that you were working on a new piece, or a new way of playing.

That's something that got started this year, and it's taking a slightly different kind of structure in that the beginning patterns don't seem to be as fixed as the other ones were. They have certain things that are fixed in them, but they're more minute. It's more like water running over rocks, you know—just like ripples. I find it's a little different and more difficult to keep on the tracks. So I'm working on that and I love what's coming out. It's really becoming quite feelingful and effective.

How long will it take to get that piece together?

You can never tell. Sometimes pieces gel in a day.

Really?

Well, you'll work for six months or eight months and think, maybe in another year I'll have it. And then, just one time, everything will come and fall into place. Music is so impossible to determine. You know, it's just grace coming from the outside that sometimes creates certain beautiful pieces.

And then, when that point comes, you don't mind other people hearing it? Is that true?

I don't mind other people hearing it. It's just that until I'm really satisfied myself, I don't feel that it's the piece yet. When I'm practicing it, there's a certain point where I develop a confidence in the work, and it becomes enjoyable. I find that out of all the performances that I do, I'll only do a performance once every two or three years that really begins to satisfy me. Most of the time I find that my expectations are too high, and then sometimes I'll play a concert and that will be the high point

of that piece and it will never come back to that form, to that high point again. And then I have to change and start regenerating the material again.

How many pieces are you actually playing now? How many things are you maintaining?

It's all becoming so branched out that it's really hard to say. Maybe there are four or five main stems, and a concert is just like a stem, right?

But there are different rhythmic patterns and definite rhythmic feelings, and I consider those to be different pieces.

Right. They're all different. I mean that there is a group of thematic ideas that go with each individual one. And then the way a pattern or the key or the mode is made up determines the main stem of the piece.

Do you have a process or a formula that you can refer to in each piece in order to find new material? Or do you let the material sort of just pop out of you when you're practicing?

Usually the new material pops out of practicing an old piece. And that stem becomes so strong in itself that it launches a new stem.

So you don't have an actual interior process that you use for developing new patterns.

The only process is practice. I practice a lot. And working on those pieces is the only way that they evolve. They almost without exception will come jumping out of another piece by themselves. So the main goal is not to try to create new pieces really. Although new pieces are created, there's no intention to do that, but through practice they come. So composition isn't necessarily an intent. I used to find that a hang-up when I was writing music. Somebody would say, we need a piece for bassoon and clarinet and French horn, you know. And when I was about eighteen I would sit down and keep working until something did come out. But it was such a hard way to work. Of course age has had a lot to do with my feelings. As you get older your body of material grows.

I guess we're almost through.

An hour is almost gone?

Just about.

Well, thank you for coming to Moonshine Ranch, Bob.

An hour is so easy. We could just sit here quietly.

Terry Is a Solo Act

by Craig Hazen

No way to start other than by just doing it and ignoring any sort of development: suddenly you're right in the center of it. Not unlike Terry's music. Starting not so much with a statement as with a movement that you have to accept on its own terms. It's not about the "personal" you—your ego. So your superimpositions probably won't work. Then again, they might—as long as you're here, why don't you try them; then we can go on to something else.

There is a problem with dealing with improvisational music on paper. It's not where it's meant to be. If it were, Terry would be writing scores as part and parcel of his composing. He doesn't. Once you put it on paper (or even on a little plastic disc for that matter) it stops being that particular kind of information which is so special. It stops communicating in the unique way only improvised music can. It becomes history, something to be analyzed, theorized and other-ized to death. Treated like a jigsaw puzzle where as long as you have all the pieces, you can take it apart and put it back together again at will—et voilà. I'm not just saying that the whole is more than the sum of its parts. I would hope that that's obvious. What I am trying to say is that you can't ever put the puzzle together because you aren't ever going to have all the pieces. Terry has them, because that's who he is. There's an intuitive basis to all improvisational music that goes beyond all the practice, theory and psychology that you want to apply to it. It is where the soul of the music comes from. It is the why of improvised music. Talking about it, unfortunately, is not unlike explaining how you know you know things. Futile. Not to mention beside the point.

That's not to say that other people can't improvise. Or even that there isn't an analyzable structure to Terry's music. There is. Or that Terry hasn't worked hard and long (like most performing musicians) to develop the techniques which make his music possible. All these things, however, should come under the heading of "given." They aren't necessarily important in coming to terms with this music. It can actually be misleading to try. For example, technique and musical content are usually somewhat interdependent. One suggests the other, and vice versa. In those terms, one would expect Terry's keyboard technique and its development to both reflect and be reflected by the content of the music. This is true only in a very superficial manner. Terry says that almost all his ideas now come from his singing, and that the only time he really practices organ anymore is shortly before he has to go on the road for performances. And yet, his keyboard music continues to develop.

You can never really be sure. Somehow it all becomes warped together into this whole that's hard to break down because of the contradictions. Yes, it is moving very slowly, well, no, that's not entirely true. There are a number of notes in a quasi-melody line happening in a relatively short period of time. So actually, it's moving very quickly. Except for the development. No, I don't know where it's going. All these characters in a play, improvising, repeating their lines over and over. Adding a word here and there as it suggests itself. Not knowing where they're going and very intent on getting there. They're actually very well rehearsed.

Terry's material for a piece is developed out of what seems to be an almost endless series of melodic interlocking phrases, some short, some long, all conceived in relation to the same modal basis. The rhythmic basis of the phrases is usually fairly simple even though the actual cycle of the piece may be a ten-, twelve-, or fourteen-beat pattern involving multiplication or divisions of the main beat by two or three. The overall time division of most of Terry's pieces is determined by the gap between the play and record heads of a Revox A77 tape recorder which he uses as his delay machine, thus giving the effect of four hands playing, rather than two, even though two of them are "slaves." Terry's Yamaha organ is a two-manual instrument with two preset selections that offer him the possibility of some rather complex timbral changes, even though he doesn't seem to be completely satisfied with its range of possibilities. In addition, a set of twelve screw-type variable resistors has been attached to the organ's oscillators and mounted on the face plate, so that Terry can change his tuning fairly quickly in between pieces in accordance with the intonation of the particular scale and key of a particular piece.

I've heard Terry play quite a few times now and have become fairly familiar with the different "movements" that blend into each other to make a particular piece. (Terry has two basic pieces that he's been working on for the past few years. All of his concerts involve permutations of either *Rainbow in Curved Air* or *Persian Surgery Dervishes*.) The ingredients never radically change, although the smaller repeated phrases that make up the larger motifs are constantly evolving. (Terry claims that the more he plays his pieces, the more he has a tendency to use all twelve notes, even though the modality of a particular piece remains constant. Indeed, now, because of his use of "just intonation," modulations become increasingly problematic.) But the feeling of the development of the overall piece is unique to the particular time/space in which it's performed. Partially, at least, the Eastern idea of the relationship between time and raga (thus the difference between morning and evening, et cetera, ragas) is responsible for some of the shadings that take place in his music.

Since 1970 Terry has studied North Indian classical singing with Pandit Pran Nath, a master of the Kirana style of singing. Terry was introduced to Pandith Pran Nath by his friend La Monte Young, whom Terry first met when they were at graduate school at the University of California at Berkeley. I think that there is no doubt whatsoever in his mind that Pran Nath is the greatest musician "now walking the

face of the earth." Knowing that a large number of Terry's keyboard motifs are reflections of his study of Indian singing offers a certain insight into his overall development of a piece in performance.

Pandit Pran Nath teaches that raga is a winding musical concept that exists out of time, each raga having its own defining form. The differences, although very important, can be of the most extreme subtlety, and come only in the manner in which notes are approached and left. When he sings a composition, it is complete in and of itself, but it is only in a way a borrowing in time from the form which exists beyond it.

Terry's music from even the time before he met Pran Nath showed a certain similarity to this style. He, along with La Monte Young and others, has sometimes been described as being part of a "hypnotic" or "drone" school of music. The repetition of relatively short melodic phrases which are changed, or, rather, developed, throughout a piece (the simplest example of this being the Columbia Records recording of *In C* or *Poppy Nogood and the Phantom Band*), on which basis is added a "tape delay" system that adds an "extra" repetition of the phrase one or two beats off the original (*Rainbow in Curved Air* or *Persian Surgery Dervishes*) certainly gives a hypnotic or drone quality to the music. But, again, this ignores the subtlety of the improvisation that is taking place. The changes are slow, but the patterns are changing and being continually interwoven in an incredible tapestry of sound that can be so delicate as to leave the listener breathless. (When Terry performs, he uses a fairly large sound system capable of producing relatively high sound levels. He has half jokingly said on occasion that he plays as loud as he does in order to keep people in their seats, for fear, I suppose, that if the amplitude of the music was less intimidating, he would lose control, and the audience would get up and leave.)

So it would be simplistic in the extreme to say that Indian music has influenced Terry. There are the obvious things like "just intonation," "Eastern" scale choices, kurta pajamas, and, of course, incense. But much more importantly, there is the attitude toward music as an organic living thing, rather than a set of mathematical equivalents to be manipulated.

In the style of music that Pandit Pran Nath teaches, the alop portion of the composition is the most important. The alop is a slow, freely improvised section with no specific rhythmic structure that begins a composition. It is understood in this music that each note is sung in perfect intonation so that the breath becomes merged with the universal—this is a given, so the actual movement between the notes becomes of the utmost importance. The way a note is approached or repeated or left for another gives the unique shape of each individual raga (and there can be many, all contained within the same scale). When you first hear the music, it is very hard to appreciate the incredible subtlety of what's going on in an art that has been developed and preserved over thousands of years. It is an entirely oral form handed down from master (or guru) to student in a quasi-fascistic relationship which requires the student to be willing to give up all else for an art that requires total dedication. There is no nota-

tion for Pran Nath's work, and it is hard, indeed, to begin to understand the overwhelming complexity of this music without first giving up some part of yourself as a token of good faith. (Not unlike falling in love, or becoming a convert.)

When you first start learning to sing with Pran Nath, you learn two basic things. The first is to take your shoes off at the door as you come into the room. The second is that what you're doing is serious. There is a gravity and mystery surrounding what becomes an early morning ritual that has a tendency to make everything important. It's not very hard to start reacting with "superstitious responses." (In behavioral psychology a "superstitious response" is one that is elicited by mistake, while training an animal by successive approximations to perform a particular action for reward. Thus, by training a chicken to peck at a lever to receive a food pellet, the chicken may be convinced that it has to cluck twice, wink its eye, flap its wing and then press the lever in order to get fed, just because it accidentally happened to be doing those other things the other times it got fed. And you always thought you were in control, right?)

When you study composition with Terry, you also immediately learn two basic things. The first is that he doesn't feel that he has a whole lot to teach you, which may or may not be true. The second thing is that he studies with Pandit Pran Nath.

Terry brought Pandit Pran Nath to my thesis concert at Mills College about a year and a half ago. Terry had to be there, because he was supposed to be one of my evaluators, and Pran Nath had come, I think, because I was one of his students. About five minutes into my second piece both Terry and Pran Nath got up and walked out. Later on during my "evaluation" with Terry, I found out that the piece (which consisted of very low and subaudio tones) had started to give Pran Nath an upset stomach, so Terry had to take him home. (Terry also talked about the European sort of Freudian "darkness" of my music.) Another composer that I know is wont, without warning, to make noises that sound like a tape machine in fast rewind, and he accompanies these noises with facial contortions that are truly bizarre. Terry had to make him promise not to do his "mind emissions" around Pran Nath—or Terry for that matter. Terry was literally afraid that the noises would do physical damage.

In terms of actual keyboard technique, the ability that Terry has at his command can be rather startling. At a practice once, he said that he would show me a good technique for getting over the dependence which one hand usually has on the other in relative rhythmic structure. He started with one of his simpler six-note patterns in one hand and then added the other playing the same pattern at the octave. He said the object, then, was to slowly speed the first hand up, keeping the other constant, so that the patterns would start to phase against each other. Then if you wanted, you could speed the other hand up very slightly to either freeze the phase pattern, or continue the acceleration of one hand to increase the phase (and of course the possibility of deceleration of either hand independently of the other existed). The

change was accomplished so smoothly and effortlessly that the only indication of what had happened was the actual phasing effect itself. I had created (and have heard) the same effect many time with either independent musicians or tape loops, but to hear one person create the sound by himself at the piano was awe-inspiring. I later asked him if the way he managed the feat was possibly by, in effect, putting one hand in a "holding pattern" (and therefore out of conscious control) so that he could then deal with the speeding or slowing of one hand without dealing with the other. He said, no, that the only way he could do this was by having complete conscious control over both hands simultaneously. The other way would have been "cheating," or at best an abdication of control.

I played bass with Terry and another piano player for several months in 1974. We were supposedly working out a piece of Terry's with the idea of a concert performance at some unspecified future date. Besides being a wonderful opportunity for learning Terry's methods of composition (or at least observing them), the experience was interesting because it didn't work. The reasons were multiple and interrelated, as they always are, but the main reason was one of communication. Terry could write down the notes and we could play them, but there was no way for Terry to control the essence of the direction of the music. He could suggest it, but inevitably, because there was no way to spell it out, we would take it in our own different directions. There was no way that it could stay intact, true to the emotions and innate feelings of the composer, without his having complete and immediate control over his medium. That's why Terry is a solo act and should go a long way toward explaining why he hasn't written "In B flat," et cetera.

Slow, slow . . . drifting. What? No, just very slow. Yeah, well it starts to get interesting after awhile. What? Hey, no, listen, if you want to put something else on. Yeah, I like it. The Who? Naw, more like jazz. Well, sure, white jazz—for Christ's sake I think the guy's Italian. Look, if you'd just shut up for awhile and listen you might get into it.

. . . Slow, slow . . . nice . . . ummmmm . . . .

Hey, look what is it about this stuff that makes you so antsy, you know what I mean. Yeah, it's not like you can just sit there and let it go by. You gotta fight it or something . . . oh, sure. You wanna smoke a joint? . . . What, I don't know, maybe he slowed down the tape recorder when he recorded it. Then when he played it back it would be twice as fast. Aw, shit, I don't know, maybe he does the whole thing with mirrors, just let me listen for awhile.

. . . Slow . . . slow . . . bigger and bigger.

Yeah, yeah, the whole first side—also the whole second—sure, downstairs where you came in. You've gotta jiggle the handle after, okay?

The hypnotic patterns which make up the drone-like background of the music are at least partially derived organically from each other as the piece progresses. There

are sudden leaps in both motif and timbre which serve almost to shock the listener into awareness at times, but for the most part the almost gamelan-like sounds are produced through these series of interlocking patterns which, as Terry practices a piece, suggest themes from the material that has already been conceived; new ones are always being given a place, and some old ones sometimes don't get a chance to make an appearance, but they are all well known by the composer, so that they can be brought into the texture as needed. Certain differences in a given performance can be derived by their order of appearance, which changes as Terry's immediate concept of the development of the piece dictates. The possibility of this immediacy is what gives him the great range of options within a basic framework, which the kind of improvisations that he creates make necessary.

When I was a young child, about six or seven, I can remember being fascinated with compound words, like "snowman" and trying to reverse the two component words to make "mansnow," which is easy enough. My fascination came from repeating the new word several times, and then having my own ear force its pattern recognition into the word "snowman," no matter how hard I tried to fight the result.

man snow man snow man snow man snow man
snow man snow man snow man snow man snow
man snow man snow man snow man snow man
snow man snow man snow man snow man snow

It was a game that was always good for the whole ride (about half an hour) to school, but for some reason, one that I can't ever remember playing on the way home.

The music becomes a life analogy of the never/ever repeating cycles with the bearded central figure dressed in white—oh Christ it's too much—get me the cross, I've got to see the cross! Even your fucking tape machines go in little circles.—A red rose? The stigmata or crown of thorns—or are we killing two birds with one stone? Ah, the smiling Buddha today, I see, well let's just rub the tummy a little for good luck.—No pain, no pain—just slowly receding.—It's all in the head . . . teched??? . . . No, uh, uh, internal dialogue.

Circles, cycles. Circles imply continuity—continuous never ending. They are also supposed to be a feminine symbol, or so I've read. That's obviously neither here nor there, but you can never tell who's going to read this.

The nature of time itself becomes an important concept in music. The experiential factor that is intrinsic to the medium is glaringly absent from the language that we use to describe it. Not just the language that we use for rhythmic forms, although this is inadequate enough to boggle the mind, but the time involved in pitches which

also exist only in a particular time/space where actual repetition in a conceptual sense is impossible. The generally accepted idea is to break things down into linear ideas (melody and rhythm) and then see how they stack up together in a block of time (harmony). Pitches themselves are frequencies of repetition in an arbitrary time scheme that only become important in relative relationship to each other, in another time division in which they are experienced. It seems to be of little value to try to separate them from their context and then try to express them in terms that leave out the largest parameter. Language is found wanting—so people make music.

What seems to be most important isn't whether or not time is non-linear or an inverted figure eight, or whatever, but rather your actual perception of how it works. Music as a medium seems to be able to expand that perception which people use to order their realities from day to day, and in order to react to what seems to be a crack in that linearity, a performer needs to draw on intuitive, non-rational perceptions.

Most people that I know have had the experience of "knowing something" without ever having learned it. Jung theorized a "collective unconscious" and simultaneity of event, et cetera, to describe this phenomenon. Possibilities present themselves in the concept of time as a non-linear function: that the promise and reality of all events (or "truths" or "knowledge") exist at all times out of time. There is the possibility of experiencing anything at any time, but the enculturation which has made it possible for you to function in "reality" keeps you from seeing the possibility. So what is needed is a tool or device to break down the concepts that we've formed. Historically, "wierdos" have accomplished this through meditation, prayer, the Tarot, astrology, et cetera, and the arts. Audiences have glimpsed it at a "safe" distance by viewing certain art with the option of always rejecting it if things start to become too confusing or unresolvable in their own choice of reality. Hell, if the people were insistent, or if their vision were strong enough, you could always burn them as heretics, or at the very least make fairly sure they never got any funding again.

It is interesting to me, although I'm not really prepared to draw any conclusions from it, that Terry's music has always been much better received in Europe than in the United States, especially in France and Italy, and, just lately, in Germany. His concerts there are treated like those of a popular luminary. He is interviewed by and makes the cover of their equivalents of *Crawdaddy* and *Rolling Stone*. Partially, the reaction can be attributed to the fact that so much more of Terry's music is available there than it is in the United States, owing to a certain lack of agreement a few years ago between Terry and Columbia Records. Also, there is always the precedent of the many jazz greats and near-greats who, for one reason or another (judicial, economic or psychological), were driven to Europe (the Parisian Left Bank, Copenhagen, et cetera) where they found enough support for their art to continue. But, again, you're dealing with a "chicken and egg" type proposition, and, as I said, I'm not prepared to draw any conclusions.

(There seems to be a fairly well-accepted misconception that the people of India don't regard time in quite the same manner as we Westerners do. That they have a concept of "proper timing" which is very loose, and involves things happening at a time when "they want to," rather than forcing things into some arbitrary division of twenty-four hours with sixty minutes to the hour, et cetera. I don't know the actual concept of the "average" Indian on the street, but I do know that Pandit Pran Nath's guru was so afraid of being late that he wore two watches, one on each wrist. I don't know if he went so far as to set them fifteen and thirty minutes ahead of time, but Carl Sandburg apparently didn't originate the idea.)

It seems that there must be a way to relate all the specifics that go into sound, in all its different styles, to the whole that we call music. But the problem rapidly degenerates into a contextual battle waged over semantics, where everyone is entitled to their opinion and it is impossible to prove to the other side (to their satisfaction) that their stupid definitions that exclude things they don't "like" are perhaps slightly askew (wasn't he a vice president, or governor, or something)? In the end all things are music except the ones that aren't (not unlike the way we choose our presidents), and our "words" for what they are or are not don't amount to a whole lot, other than intellectual confusion. Historians will always describe things as if they only existed as conceived in the world of the historian's mind, and people with any sense will ignore them. There is no such thing as truth or reality; there are only "different versions" and what you choose to believe. The irony being that all versions are contained within a closed system which is true by definition, because it exists—that is, "everything you know is wrong." (As a proof of God I would give this essay a "C" and refer you to Descartes who got a "D.")

After having spent a goodly amount of time thinking about writing this piece, it becomes clearer and clearer in my mind that the true objective of what I'm trying to say has already been best expressed by Terry in his music. Or if not that, perhaps I should be trying to tell the story in completely different terms—Bleep—Bloop—Pop—hisssssssssssss—Do anything for you? No, I didn't think it would.

What if the whole thing is just a big case of mistaken identity? You know, this Terry Riley isn't the real one, the one I'm supposed to be writing about. I should be writing about this woman who lives in Yonkers (she's originally from Petaluma) who attaches electronic pickups to her body and then does obscene things to a video monitor that shows looped reruns of "Let's Make A Deal." But, I don't know about her. I've never even heard of her. And the problem is that I can't tell whether it's a moral thing or if the San Andreas fault has become an invisible Colgate shield that's going to forever perpetuate "them" and "us."

(I'm probably just being a little paranoid, but self doubt does have to be dealt with, and California seems like a good place to start.)

There is a certain quality to Terry's music which seems special to California. I have heard it described in terms of "light" versus the "darkness" of the East Coast or European tradition, and even though the analogy ignores all of the qualities which the two have in common, I have to admit that it is apt ("the West Coast has the sunshine and the girls all get so tan"), even though it is an obvious fact that almost everyone on the West Coast came from somewhere else, it's important to realize that most of them have come here in the last one hundred years, and, impossible as it may be to leave your culture behind, people on the West Coast seem to have managed it. That doesn't mean that everything is on the level of the drive-in funeral parlor, but it does mean that there is a greater chance for selectivity in culture and a greater acceptance of experimentation. Roots are still in the process of being synthesized from many different cultures, both Eastern and Western, and to a certain extent they're being invented as the needs present themselves.

Not too long ago when I was getting a rock and roll group together to play bar gigs in the Bay Area, I asked Terry if he wanted to play keyboards. (I thought he'd be a natural for the "San Francisco Sound.") He said that no, he'd already done that (he used to play ragtime piano in the bars on Broadway when he was going to college), but asked if he could sing. He'd always wanted to do "Wichita Lineman," a Glen Campbell song from about six years ago. Between that and trying to remember the bass line to "Lady Madonna," he flunked the audition.

Coupled with the ongoing synthesis of roots and tradition is the idea that life, on a superficial level, is easier in California. I am constantly reminded of Charlie Chaplin's vision in "Modern Times," where breakfast is merely plucked from the branch of an orange tree that sticks through the window of his perpetually sunny kitchen. (Of course life isn't really like that, but clichés die hard.) Things are more "laid back." Alice's white rabbit stops being forever late and becomes Grace Slick with all the time in the world to be warped any way you see fit. Or in other words, the pieces get longer.

In Terry's music these factors manifest themselves in that idea of "dark" versus "light." His music becomes a reflection of the sunlight and clean air where he lives. It has the freedom to breathe and evolve in its own time and direction in much the same manner as does the culture in which it has its roots (and part of whose roots it has become). Terry, his wife, Ann, daughter Colleen, and son Shahn have been living in a small town in the Sierra Nevada foothills for just over two years. His moving there represented the completion of a cycle for Terry—from growing up in a small town in northern California, to being a big "city slicker" mostly in San Francisco (with several years in New York and Europe), finally back to a small town in northern California. (Actually I have yet to find out where the town of Comptonville, California, is. I mean, I've been to Terry's house lots, and as far as I can tell it's in the

middle of the countryside, just outside of North San Juan, with the sawmill just a little bit beyond. I've never seen a sign that says "Alt. 13,002 ft., Pop. 23 1/2." I'm not sure if that makes it a mythical place or not.)

When Terry and his family first moved to the country, he had to leave almost immediately for Europe to do concerts for a month. When he got back, Danny [one of his students] had drained Terry's pond to see what was on the bottom, and unfortunately, the pump that was used to keep it filled had broken down. Terry's garden was being ravished by deer who were afraid of no one, so Danny and I helped Terry build an eight-foot fence around the garden to try to keep them out. In the meantime people like myself were coming to visit in numbers too large to enumerate. Terry tells me that when the Russians moved to the northern California coast, the reason they finally gave up and left was that the gophers destroyed their crops. I also haven't seen any gophers yet.

"Money, money, money, money." No matter how crass, it has got to be a consideration when talking about an artist in our society. I know Uncle Jerry and some of the other head honchos are convinced that "good" art will support itself in the open market, but those of us who have been in the closed market with our "bad" art can only muse on the roads not taken and the pieces not played.

Hi. Hello? . . . Oh, there you are. Hi . . . really good, how 'bout you. Far out . . . Yeah, I know. But whenever I'm home the phone never rings. Yeah, I talked to Terry and he'll be doing a thing at Harvard about the same time, so yeah, he'd really like to do it. Well, I don't know, I don't really want to get into that sort of thing—why don't you give him a call and you can wring each other's necks over a price instead of both of you working on mine.

Yeah, that's what he usually gets . . . I don't know—who am I? Bill Graham?

After many years of experience, my son, these are the words I wish you to carry with you at all times in order that you might fulfill your existence: "I play . . . you pay . . . today." That you, my father, (mani padme OM) . . . Also, if you're going very far to play for "them," be sure to get a round trip prepaid ticket in advance, or there's a real good chance that you're going to be "there" for a while. (Can I get an OM??? C'mon, who'll give me an OM?)

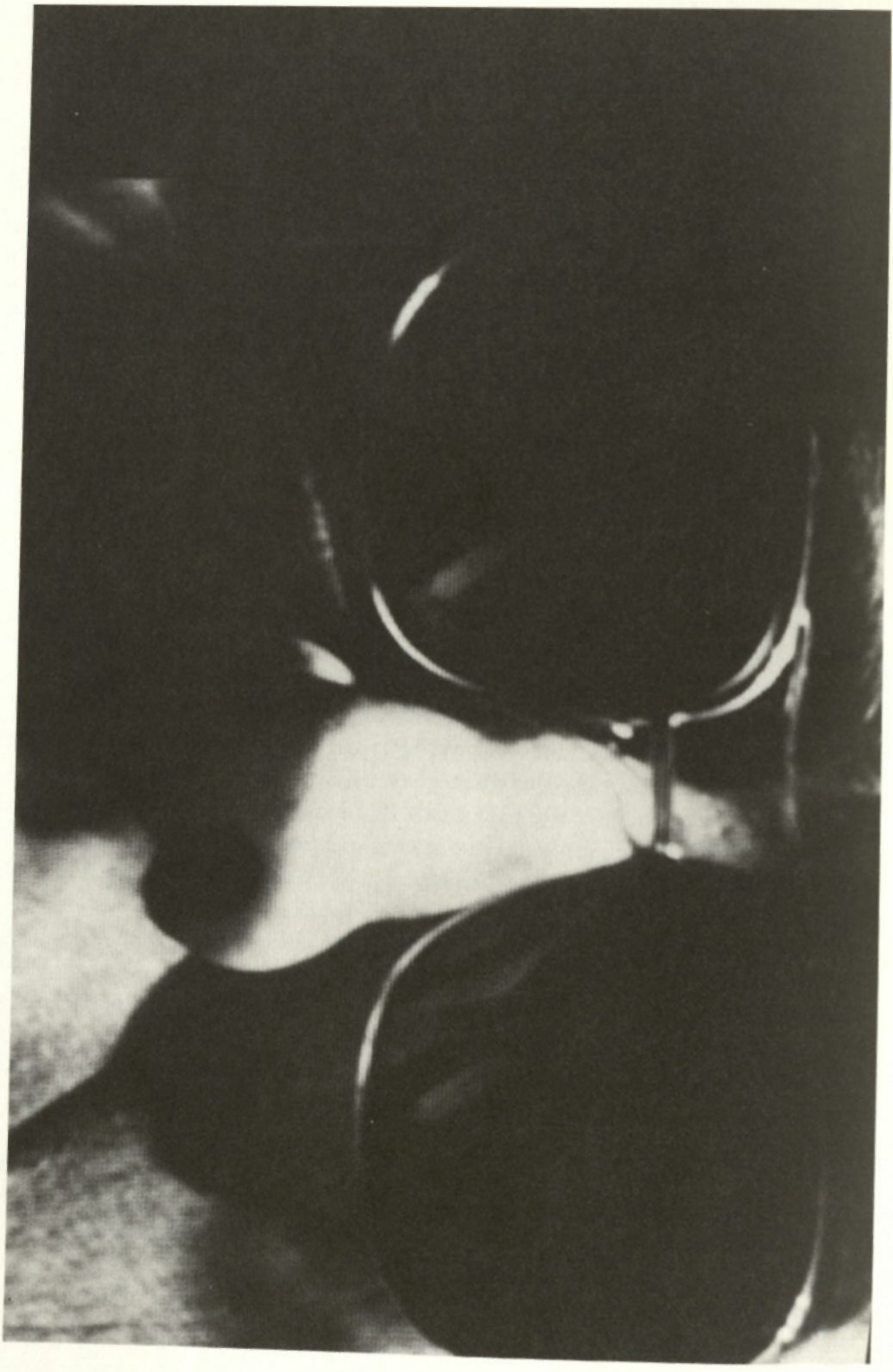
Also, there is the ego of the artist to be fed, and the ambitions and competitiveness that being raised in our culture fosters. I can only imagine the feeling of receiving a score in the mail and recognizing it as your own piece in a different key, with someone else's name on it. I know that it's happened to Terry, and to many other artists, and even if imitation is the sincerest form of flattery, it's a strange system indeed that will poison the creativity of its population by turning the art community against itself for either "fame" or "fortune."

There are things that cannot be known. Not now and not ever. We still won't know them when we land on Jupiter and we probably won't know them when we die. Most people are very "rational," or like to think of themselves as such, and therefore don't believe in mysteries or intuitions. Everything is "logical." When facts don't fit the theory, either the theory or the facts must be changed. Intuition is "feminine," dark, in the realm of the moon and magic (which everyone knows is perpetuated by quacks and hucksters). Over the centuries we have thought up symbolic representations of the mysteries of the universe like the Magicians of the Tarot. Unfortunately, contemporary "rational" man has come to see his symbols (scientific theory, et cetera) as fact and truth, rather than as a poor representation of universal experience for which there are only questions. Music like Terry's creates rips in the rational and invites us to experience ourselves as process within the continuity of an infinite world.

Sometimes sitting, sitting, floating—sometimes nowhere at all. Sound starting inside and being drawn out into this vacuum that exists everywhere, always a felt presence. Total effortless concentration—and then . . . I lose it again. You should try it. It's like holding your breath for ten minutes. At first it's very easy. But then slowly you start to tighten up, your throat hurts and your lungs start to hum. Your heart, head, eyes and ears begin unison pounding with no relief—stronger than your will, probably—and then, slowly—it gets easier, and finally dissolves into effortless non-being... What? Oh yeah, sure, you're right, it's easier to drown. Having never done it myself, I'm not entirely sure that you get that same indescribable feeling of being turned inside out through your mouth.

Something, I think—no. Sometimes—no, let it go.

Landscape with Robert Ashley



Sound Changing Its Own Bahavior

by Robert Sheff

In Bob's *Complete with Heat* pairs of performers face each other, each performer responding only to his partner's choices from a single page score that contains eighty-five groups of notes "arrayed in a hierarchy of potential phrase lengths and potential dynamic levels," each pair completely ignoring what happens around them, as if they were dancing. *Complete* is performed together with the eight-and-a-half-minute composition *Heat*, which is a tape of two sources—Bob speaking through a microphone beneath a mask covering his face to prevent outside resonance, and sine-wave oscillator. The voice is modulated at different speeds, and both sounds are gated by a switch that determines the onset envelopes of the sounds—a rushing-rise-of-sound circuit of the "master-slave" voice-or-music compressor type used for a long time in radio. In its concert form, *Heat* is for four loudspeakers—"the fact that all of the available sounds were treated in the same way in the course of the improvisation, accounts, I think, for the apparently ambiguous nature of the sound material." Resonant (mutually-affecting) duets, local geometric pools in a sea of molecules moving about at random (heat)—all other forms of energy result from an ordered, non-random arrangement of the elementary particles of matter. G. Porter in *The Laws of Disorder* (1965) has pointed out that disorder is the natural condition because an ordered arrangement conforms to a pre-chosen requirement, and since heat is the only form of energy arising from disorder, or random movement, it is therefore the most likely to appear. Because all energy transformations, except the transformations to heat, are incomplete (even though nothing is created or destroyed) we are in a situation of "imprisoned incompleteness" which can exhibit spontaneous energy transformations, sudden changes of state, no matter what pathways (for example chemical) are pursued. Bob is dealing with the physical reality at the basis of, for example, John Cage's compositional techniques based on the indeterminacy of states. The electronics are used to amplify and outline, or silhouette, the random and involuntary small sounds of the voice, which is purposely not projected or stressed—in projected speech or singing these might only be heard as hoarseness caused by social repression (described in Alan Lomax's *Folk Song Style and Culture*), or by age (as described by the slight ring-modulation of the businessmen's voices in *Frogs*, Part One, of *That Morning Thing*), or by stylistic or emotional intention (as in the humorous, sexy and "sly" style of Bob's reading over an electronic score in his soundtrack for George Manupelli's unrealized movie, *The*

Fox). There is also an analog for these involuntary small sounds in the popping and springing events produced by loose strings under extreme bowed pressure (the sounds then processed by an electronic matrix which amplifies "coincidences" or small catastrophes or constraints) in *String Quartet Describing the Motions of Large Real Bodies*. Cynthia Liddell's voice is close-miked, and surrounded by bell-like sounds of constant slow pulse—but phrased pitch—occurrence (random movement among a set of fixed pitches) in *Purposeful Lady Slow Afternoon*. The longest (largest, or whatever) work to date in which Bob has explored this idea of the amplification of vocal details is *Automatic Writing*; the voice also goes through an electronic matrix which suddenly shifts the states or proportions (depth and locality) of the stereophonic space (field). In *Perfect Lives* and *In Sara, Mencken, Christ and Beethoven There Were Men and Women*, a smoother voice, with full words, is used because the rhythmic aspects of the voice are being paid attention to (as in elocution, oratory, chant and the mentation of words without physical breath). Musical composition is a mix of what you pay attention to, shine your light on, and highlight in behavior other-than-yours and your own; what is inherent in that behavior (apparently "built-in"); and the sense of potential, the hope for new possibilities to show themselves. For instance, if you are paying attention to movement—the number of events and the proportions they exhibit in action—eighty-five events (for example) outside-of-time (vertical, harmonic, "all-at-once" stacking) could be unfolded in real-time (horizontal, melodic, creating a sense of "one-after-the-other" time) in a set time schedule, or, improvisation of eight and a half minutes; or, if you are paying attention to the behavior of physical details, the structure could be put into the circuitry of an electronic box, which could describe that behavior—it could observe coincidences and make changes or modulations in the sound accordingly; it could observe proximity, Doppler effects, inflections or envelopes of expression used in "meaningful" speech compared to those in "ordinary" language; it could sense certain characteristics of the input and feed those back to be added to the new input, so that the sound is changing its own behavior; it could impart changes that happen in a short time period (frequency changes in a second) to effect changes over the large structure on another parameter (amplitude changes over ten minutes), et cetera, et cetera. Once the structure is articulated, you can free it or freeze it—for instance, the performers can improvise on a given highly ordered structure (for example the symmetrical charts of John Coltrane, compared with how he played them); the input to the electronic box can be improvised and the behavior of the box remain the same (the box is "memoryless"), or the inputs remain the same but the output is generic or unpredictable (the box has "memory," calculates pathways from observing event occurrence, and adds that back with the new input, a cybernetic servo-mechanism), et cetera, et cetera. This "box" can be physical and/or conceptual, of course.

Bob's *Public Opinion Descends Upon the Demonstrators* deals with accepting the divided self-consciousness of audience members, at least, "at American concerts."

This piece comes in six sizes, graded from a performance for exactly six people (soft sounds, sounds as objects, like radios, et cetera) to a performance for 28,278,466 people (unspeakably loud and destructive pure noise, sounds as effectors of audience behavior, "possibly the nuclear event"). Periods of alternating sound and silence in this piece are scaled by the Fibonacci series (used to create the larger structures in many of Béla Bartók's works—Bob admires Bartók for telephoning Henry Cowell to ask for permission to use tone clusters—"human engineered" architecture, and the proportions used to describe various natural phenomena ranging from the shell of a chambered nautilus to the equiangular or logarithmic spiral of the ratios or wavelengths in the diatonic scale(s), to the eccentricity of the star Sirius (its deviation from orbit), which is approximately the inverse of the Golden Mean, which is expressed in the ratio of the last two numbers of the Fibonacci series as it nears infinity; the series also can have self-limiting nodal properties designed into it—these are re-cycling points in the form of exactly repeating numbers, which have the ability to describe, for example, re-bounding "echoing" surfaces, or certain specific (and, therefore, specified by the observer) task-behaviors, expressed as proportions over time), and the sounds and silences are gated outside of this pre-composed score (the composer's consciousness, or, at least, intentional act) by the audience's behavior (their consciousness . . . which they normally surrender).

This relationship between the planned and the live, the immediate and the spontaneous exists in all of Bob's music—like knowing your rights and maintaining the independent situation. There doesn't have to be a contradiction between the knowledge and the development of (symmetrical) forms—some of which are reflections of previous dynamical events, and some of which appear to be developing "purely," out of the physical context—and the free, dynamical use of these forms; or, there doesn't have to be a contradiction between the "mental" and the "feelingful," as would happen in a blockage between the upper and lower chakras of the body (including the subtle or aetheric body). For example: Anton Webern wanted his (symmetrical, reversible) music to be played with the emotion of a performance of Johann Sebastian Bach's music; Thomas Tallis' forty-part motet (eight choirs of five parts or voices each) *Spem in alium nunquam habui* is transparent and highly emotional with amazingly "zinging" dissonant moments as modal and cadential (flat and sharp) sevenths simultaneously traverse one of the axes of the symmetric cross-shaped distribution of the choirs (North, South, East, West, and four in the center) to be resolved in the tonic of another distant choir.

Bob conceived of the *Illusion Models I–IV* during 1970 and 1972, when he says he was "cosmically out of work" (no new pieces). Talking with John Cage, they decided to see how many aural illusions could be invented or described (the visual illusions have mostly been covered)—"In our larger world of sound, we commonly experience illusions, but they are almost exclusively in the category of error." The *Illusions* are described as "virtually hypothetical installations in which computers

would control sound in such a way that certain effects would be created in the perception of the visitor that otherwise are impossible to achieve": structures or procedures apart from their specific performance or physical realization; and some are possible only with computer real-time calculation and feedback—some are still not technically possible to perform, or at least, weren't possible when they were first conceived, or performable only in limited versions. *Illusion III*, the identity illusion, deals with how you understand what a sound is, by (discontinuously) transposing the natural orders of the shortest sound components you could identify; for example, re-arranging the order of components in the sound of an auto accident—bumpers and grills crunch, motors collide, passengers go through windshields, et cetera; or a gunshot—hammer hits shell, shell explodes, compression of air, bullet leaves barrel; or the complexities of the vocal tract studied in speech synthesis (I have read the extreme details of such an analysis, with diagrams, that Bob did for one of his college courses when he was a student). The question is: do you know what a sound is because of sequence, or what? The problem is especially interesting when you have never heard the sound before (an "aborigine" hears an auto crash, a "city dweller" hears a kangaroo). We examine the "envelope of expression" from all angles (observer rotates in four dimensions, object stays fixed but apparently reordered, and vice-versa. This *Illusion* was the beginning of the ideas of the *String Quartet Describing the Motions of Large Real Bodies*—the seven possible rotations of the inter-modulating, laterally-connected matrix; and *In Sara, Mencken, Christ and Beethoven There Were Men and Women*—the idea of seven plus seven).

> We have magic, as entertainment or ritual, or perhaps, historically, as religion. But the magic we know is largely visual with heavy psychological overtones. Our music, in the most extreme interpretation of its complexity, has no purposeful illusionary quality. We expect to recognize what we hear . . . electronic technology has introduced us to the world of aural illusion. Recordings are primal illusion . . . In the case of the *Illusion Models*, sound will be organized with the sole purpose of creating illusions that have only the vaguest correspondence to real-life sound. In this, perhaps, the *Illusion Models* are music.

The flow-of-time is a projective belief-system that depends upon "beforeness" and "afterness," and on ignoring all the peripheral events, images, smears, buzzing in your ears—all the distractions that surround (including: seem to get in the way of) intentional behavior. These discontinuities (by relationship to intention or planned behavior) can be accepted as positive information when you realize that the content of intentional behavior is itself born in this world of "distractions," which eventually exhibit a "deep structure" unique to each local magnetic pool (including a person's behavior). Bob's description of the making of this piece is so wonderful that I want to quote a large portion of it here:

I had noticed that under certain specific situations of psychological or social stress—when there were too many people around me and I was reacting to too many obligations—I would tend to hide in the toilet . . . and while I was there, I would tell myself stories . . . inevitably a certain phrase would crop up in the telling . . . it was like, structurally, a dream, in that it—the transaction—required a separate place or a separate state (sleep for the dream, and the toilet, or in fact, any sort of private place (as in: I have to run to the store and get some cigarettes—for the waking drama) and in that the activity had no connection or relationship except removal to the activity it alternated with. And, like the dream, it had its own characters, who seemed always there, waiting in the wings for me . . . in the case of the waking drama, the characters were not people but phrases of speech . . . I had discovered in myself a perfect example of involuntary speech. In other words, I had found a link between what I know instinctively was the sham of the perfectly intelligible world and the other world—sounds . . .

In 1975, or around then, I recognized that I was working with two ideas. One was the notion of the sadness in the isolation of the form of my uniqueness. Another was that this sadness, but not the form, was expressed in involuntary speech. That is, I had become modern in my own eyes, and it had lost some of its charm. A typical experience, I think. The synthesis of these ideas—that is, my art—took that sadness as the subject of its form. I recognized that unlike what I had expected as a "career in music" had matured into a characteristic sort of physical and cultural isolation . . .

In trying to present involuntary speech, I came up against a predictable problem: my respect for the state—in the form of the forms I had required of myself as a citizen. And I was not alone in this. No matter what technical or procedural apparatus I introduced into a public performance to evoke involuntary speech in the performers, I was always outwitted, that I always failed, because citizenship comes first, assuring, as it does, participation in the food plan, and other benefits. In other words, it's true, as we've always been told, that you can't hypnotize a person to commit a crime he/she would not commit anyway (as they say). For the citizen, involuntary speech is not different from stealing bread, no matter how hungry you are. It's always a problem.

Bob has always liked people who talk to themselves or who can fall asleep anywhere.

In this way of thinking, composition equals citizenship—that is, good citizenship, and is an attempt to correct the world form as it is transmitted to us. The criminal in me, acting against the best wishes of the state, wanted to expose, at least once, the unrevised form . . . I set up an apparatus that to the greatest degree which provide the solitude in which the will to suppress and control the corrective instinct would function. And in this environment, I sought out involuntary speech. I wanted to trace "you guys are all" and "I wanted to" and "fuckin' clever" and "the varispeed" through whatever permutations were intrinsic to their origins . . . first, I discovered that the obvious organization of the material—that is, that every one of the phrases is in four syllables—was deeper than coincidence. Most of the phrases of that session were in four-syllable combinations. Fourness was more important than the meaning of "you guys are all."

You can conduct TV when, for instance, a panel-discussion show is on, and you bring out the rhythmic modalities that can be noticed by an outside observer not

under pressure to drone on at the normative pitch of his or her conversation, or emphasize and place words in their rhythm. I also remember Bob and me walking back from a speech at the San Francisco Civic Center and appreciating the rhythm of Ron Dellums' speech which could still be heard over loudspeakers blocks away—the feeling of the meaning of the words could be picked up, through the inflection and rhythm, even though the details of speech were blurred by the reverberation of the distance—recognition through frequency of occurrence and envelope of expression.

> Second, a larger version of the form emerged in my attention span (as they say). Each of the four phrases exhausted itself in my attention finally and was "naturally" replaced by another. Third, as in sleep, there is always some time-keeping mechanism at work. I had put on a forty-eight-minute tape without any commitment or sense of obligation other than the realization that only forty-eight minutes would be recorded, no matter how long the session lasted . . . what happened, predictably, is that the session came to an end—that is, my attention flagged completely—at forty-eight minutes . . .
> Naturally, the tape was unacceptable. I played it for a few friends, who were impressed by my experiment and embarrassed by the result.

Well, I liked it, Bob. For the final mix, for the published recording, Bob's voice (originally recorded with the EV 666 at full gain, so that he would not have to project or stress his voice as if some one else were present) was processed by the coincidence-matrix box, designed by Bob and built by Paul DeMarinis, which would bend the stereo field, or tensor field, presenting his voice (and ambiguous ambience of the room, molecules of the air, street noises through the window, neighbors through the floor) in shifting states and locations and size of field—electronic distribution, triggered by the sampling of (amplitude) characteristics that were inherent in his voice and its rhythms. This gating and triggering is a perfect musical illustration of the now famous phrase from this piece: "My mind is censoring my own mind/what time is it . . . " To this stereo-processed vocal, Bob added a French translation of the phrases spoken by Mimi Johnson, a peaceful organ improvisation (in the expectant, but neutral atmosphere of the mixolydian mode that Bob often improvises in, or on, as Bob's joke goes) and, for a fourth character, we managed to re-create the disco-through-the-floor pulse that, by courtesy of his downstairs neighbors, was almost continuous underneath his apartment ("the sordid apartment," near Mills College, as he calls it) where the voice recording took place.

The final mix is mysterious, gentle, and—sexy (one reviewer titled his article, "The Secret Sex Life of Robert Ashley"); it is somewhat like someone talking in their sleep next to you—shades of Phil Harmonic's "Christ-was-I-drunk-last-night" excuse. Bob does have Scorpio in mid-heaven in his natal astrology chart—but, aside from that California-type wisdom, Bob fondly remembers his father talking to himself. Exposing the "unrevised form," opening up to the dynamic re-freshing ambiguity, although necessary to provide the material with which to compose, is the reverse of the usual compositional direction, more akin to "free improvisa-

tion" than improvisation on a given theme, or even a preferred sound—a search for the root experience of the pre-conceptual, "the structure of the unspeakable," as Bob says.

In this piece, instead of the ("normal" compositional) idea of arranging, developing, revising "material" already worked up, Bob's compositional act is in the arrangement of a certain situation for the emergence of material exhibiting its unfolding form(s), and both his voice and brain fields are the instruments.

In Bob's computer *Illusion Model I*, the listener is in the exact center of the "room" or listening space, and doesn't move. A regular, undifferentiated pitch is heard from all sides. Mixed with this is a sample from *The Entrance*, a piece for two-manual organ, in which a thirty-six-note chromatic cluster ebbs and flows in density over an approximately three-hour duration by activating each of the eighteen keys on the tow manuals using stacks of pennies, eighteen of which are heads-up, eighteen heads-down; changing the number of pennies in a stack, and re-stacking them one-by-one on other keys according to a beautifully meditative procedure causes certain keys to be only partially or intermittently activated, creating various arrays of harmonics, a quasi-random "sputtering" of notes, et cetera, so that the acoustic space changes its presence as an invisible limit, alternately bound and unbound—when mixed in with the *Illusion Model I*, the walls of the listening space seem to shift state; this is the Remote Boundary Illusion.

If you have ever sat still in a room for a long time, peaceful or fatigued or drunk, you will have noticed these discontinuous changes of attention, how things may appear to move away or come closer or sway or pulse, and it is not possible to tell from your perceptions of the outside what exactly is happening; that is, you are appreciating your own internal makes of mood attention, "atmospheric pressure/ambience," clocked (perhaps) in some harmonic sub-division of your circadian rhythm (twenty-five-hour electro-chemical clock), and "writ onto" the tabula rasa of simple surroundings. As for the effect of the outside in these magnetic moments, the random or orderly stimulation of a tuned or (coherent) self-referential system (for example a set of resonant filters) only disturbs that system insofar as that system is capable of recognizing the outside spectrum—that is, it is listening to its own reactions which it may imagine to be shadows of something "outside"—this is descriptive only of a memoryless state (no feedback, no philosophy loops); a state with recognition, thinking and sensation would be shades of Hume and Locke locked together, humidly. The problem in the design of musical situations is to arrange to go beyond the mechanism of reactionism. "Psychophysics operates in a fashion that in some aspects is surprising similar to quantum physics. Broadly speaking, as physics in general, psychophysics tries to make predictions on the response of a specific system subjected to given initial conditions. The system under consideration is the brain and associated peripheral nervous and endocrine systems—evolution is manifested by the individual psychological reactions or by the whole complex behavior

of the organism commanded by the brain." (Juan G. Roederer, *Introduction to the Physics and Psychophysics of Music*, second edition, Springer-Verlag). I'm interested in the "evolution is manifested . . ." part.

The unchanging pitch in *Illusion Model I* is suggestive of the "central resonance factor" of any relatively enclosed space (including your head, chest, et cetera) and the act of setting it ringing is the feedback idea of *Illusion Model IV,* and the idea of surrounding yourself with that resonance is *Illusion Model II.*

In *Illusion Model II*, Bob describes the "other side of the coin," or reverse magnetization of the directionality of *Illusion Model I,* which has created the modality of "something out there," a sense of the outside seen or unseen, with "objects" or pressures of the field moving about oneself. This is not the same modality as the sense of empty space because it (and the field of *Illusion Model II*) is filled-in space – empty space is non-modal, but its "pure" perception may not be possible for a human being, although we can lighten and open up our spaces (as we do from childhood) to, for instance, accepting distance as a given, and acausal events (coincidence, the unspeakable) as more real or occuring more often than the other causal images. In any case, the processor of the "meaningfulness" is ourselves—it is difficult not to appreciate distance living on this hillside in the Bay Area. In this part of the country, as Mary Ashley said, the land seems to float in the clouds— the geography of America, or the relation of human nature to the human mind. So, as the magnetic reversal of *Illusion Model I*, *Illusion Model II* is the Near Boundary Illusion in which the listener takes up the mobility that was a property only of his environment in *Illusion Model I*, and can move about, but still thinks he is the center because, hypothetically, an almost infinite number of small loudspeakers constantly change the amplitude of sound broadcast by "the wall"; this compensation is accomplished by proximity detection of the location of the listener, a constant surveillance, and the calculation (by computer) of the appropriate amplitudes at each loudspeaker. The "aether" seems to constantly surround the listener, who is "inside." In both *Illusion Models I* and *II*, the frequencies used are so high that it is necessary to have digital analysis and control of these illusions—they are not possible with analogue gestures.

So, taken together, *Illusion Models I* and *II* describe a quanta-filled universe that attains directionality in certain magnetic moments, evoking the mystery of the pathways of past-and-future time (one solution for which is the idea of "lateral connectedness"): if a proton moves along a curved path through a perpendicular magnetic field generated by electric currents (for example flowing in a pair of wire loops), and the direction of time is reversed, both the currents and the magnetic field and the motion of the proton will be reversed, and the proton's path will be invariant and simply retrace its previous "forward" path in the opposite direction; in a magnetic field produced by an array of particle-antiparticle pairs (north-south monopoles) the magnetic field would remain unchanged in time reversal, and the proton, reversing direction, would not retrace its same pathway.

Epilogue

Robert Ashley Documents the Aether

by Tom Johnson

Judging from the image on the color-TV monitor, we are on a boat gradually approaching the Golden Gate. The soundtrack consists of Robert Ashley talking to David Behrman about his music. I figure that the two men are also on the boat with the camera, and I expect to have a view momentarily. The camera doesn't cooperate with my desires, however, and continues to focus straight ahead. Then, after maybe ten minutes, it rises and begins to circle overhead, looking down on the buildings of San Francisco. A tricky cut? A flying boat? I eventually realize that I must be seeing all this from a helicopter.

Ashley and Behrman continue to talk on the soundtrack. Their conversation is quite informal, with many incomplete sentences and some very long pauses. Breezes blow in the background. About fifteen or twenty minutes into this videotape, the camera comes back to ground level. There has still not been a single cut. Off in the distance we vaguely make out two men sitting at a picnic table. Gradually we get a closer view and discover Ashley and Behrman, in perfect lip sync. The tape runs on for another forty minutes. Sometimes the camera flies away, returns, and finds the speakers standing on a hill or walking somewhere. Most of the time we must be content to watch them from a distance, or not see them at all. The soundtrack continues to be informal but insightful. There are no cuts.

By the time the hour is over, I realize that I have experienced not only some remarkable camerawork by Philip Makanna but also a perceptive portrait of Behrman. The tape reveals him as a quiet, modest man who doesn't like looking at the camera any more than this camera likes looking at him. His short answers often leave the interviewer at a loss for words. He frequently deflects the conversation away from himself and onto other topics. Ashley points out during the interview that his music has an intimate quality and is intended for small audiences. Everything fits together.

On a more subtle level, the tape also made me understand a little more about Ashley, who is the producer and director as well as the interviewer. I remembered that for some years he has been doing performance pieces that involve spontaneous conversation, and I begin to appreciate the amount of study that has gone into making his talking performances seem so casual and unstudied. This is only one of the fourteen hour-long tapes that make up Ashley's *Music with Roots in the Aether*, on view at the Whitney Museum through April 20. There is an hour-long interview and

an hour's worth of musical performances devoted to each of the seven composers included in the series. Some of the settings and camera angles used in the performances are as unlikely as those used in the interviews. During the performance of Behrman's *Music with Melody-driven Electronics*, the camera frequently looks on via mirrors so that one loses a sense of direction. Gordon Mumma is interviewed while oiling his bicycle, and is shown playing his musical saw in an unpopulated amusement park. Philip Glass talks mostly about money and practical matters and becomes distracted by children playing in the background, while the camera occasionally picks out twitches in his fingers. Terry Riley gives his interview while milking his goat in rural California, and then goes into a sort of rustic-modern house to play some of his solo organ music. Alvin Lucier is represented by three works, one of which takes place during the interview. Pauline Oliveros does one of her often discussed but seldom heard accordion-and-voice performances. Ashley himself is interviewed by an assistant, and presents a theatrical work called *What She Thinks*. The series reveals a good deal about the artists, and presents their works with care and understanding.

I think the main reason Ashley feels this music has "roots in the aether" is simply that it is not completely notated. Of course, it is not exactly improvised either. In most cases the performers may make only extremely limited choices. In Glass's music they must even stick to prescribed melodic fragments. In all cases, however, the sense of timing and pacing is rather free. Neither the composer nor the performers can predict how the music will take shape in a particular performance, or how long the performance will last. Some of this is determined by, well, the aether.

For Ashley, I think his title also implies a lack of historical roots, but I'm not sure about that. Certainly all of these composers owe debts to John Cage and other composers who launched a general approach to indeterminate music in the fifties. All of them have been influenced to one degree or another by Eastern ideas, and I sense a spirit of jazz here and there. Certainly they all have been influenced by developments in electronics. On the other hand, none of their works sound much like anything that came before. But whether their music has specific historical origins, or whether it did to some extent spring out of the aether, it must all come from about the same place. All seven composers are around forty to fifty years old, all are Americans, all are probably as well known in Europe as they are here, and all create relatively static pieces that generally take a long time. They do comprise a sort of category, however nebulous, and perhaps the most valuable thing about Ashley's videotapes is that they help define this category. Furthermore, by putting everything together, they make it clear that something significant has been going on within this category. Of course, Ashley does not claim that these seven names should be regarded as any sort of definitive list or school. In fact, he had originally planned to include one or two others in the series, and it would not be difficult to see a number of

other American composers, and perhaps even a couple of British ones, as part of the same basic phenomenon.

I have been emphasizing the subject matter of *Music with Roots in the Aether*. But documentaries are also works of art in their own right, and it seems to me that this one is particularly successful, even though it's as long as about eight or ten typical feature films. Ashley's settings sometimes verge on the bizarre, but they always end up seeming appropriate in one way or another, both in the interviews and in the performances, and as I mentioned, his own extremely casual talking and interviewing method is an art in itself. Not only does the no-cuts technique present a unique challenge that Makanna's camera meets ingeniously time after time, but it is also appropriate to the long, unbroken continuities of the music. That lone camera moves slowly and somewhat predictably, a bit like the music itself, but neither is ever boring. There is no editing on the soundtrack either. The tapes come spectacularly close to actually capturing a live-performance quality. At one point, after having seen quite a few of the tapes, I suggested to Ashley that *Music with Roots in the Aether* might well be his own finest creative work, but he only shrugged. Perhaps he thinks of it mostly as a documentary of other works rather than as a work of his own, perhaps he was just being modest, or perhaps after almost twenty productive years as a creative artist he just finds it too difficult to make such comparisons.

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Essayists' Biographies

Singer/composer MARGARET AHRENS has received acclaim as an interpreter of a varied repertoire of standard operatic and concert works, and as a composer/producer/performer of contemporary and multimedia pieces. She made her recording debut on Gunmar Records under the baton of Gunther Schuller and has performed with new music advocate/conductors Gerard Schwarz and the late Robert Black. Her performances include numerous world, American, and New York premieres. She has sung on concert series at Weill Concert Hall, Symphony Space, the Guggenheim Museum, Merkin Concert Hall, Riverside Church, the United Nations in New York, and the French Embassy in Washington, DC. Her European performances have been heard at the Ro Theatre's Rotterdamse Schouwburg and on Westdeutscher Rundfunk. Margaret Ahrens lives on a ranch near the Snowy Range in Wyoming with her husband, economist and violinist Sherrill Shaffer, and their musical son David.

PAUL DEMARINIS has been wôrking as a multimedia electronic artist since 1971 and has created numerous performance works, sound and computer installations and interactive electronic inventions. He has performed internationally, at The Kitchen, Festival d'Automne à Paris, Het Apollohuis in Holland and at Ars Electronica in Linz and created music for the Merce Cunningham Dance Company. His interactive audio artworks have been shown at the ICC in Tokyo, Bravin Post Lee Gallery in New York and The Museum of Modern Art in San Francisco. He has been an Artist-in-Residence at The Exploratorium and at Xerox PARC and has received major awards and fellowships in both Visual Arts and Music from The National Endowment for the Arts, NYFA, NYSCA and the John Simon Guggenheim Foundation. Much of his work involves speech processed and synthesized by computers, available on the Lovely Music Ltd. CD *Music as a Second Language*, and the Apollohuis CD *A Listener's Companion*. Installation works include *The Edison Effect* which uses optics and computers to make new sounds by scanning ancient phonograph records with lasers, *Gray Matter* which uses the interaction of body and electricity to make music, and *The Messenger* which examines the myths of electricity in communication. Recent public artworks include large-scale interactive installations at Park Tower Hall in Tokyo, at the 1996 Olympics in Atlanta and Expo 1998 in Lisbon.

PETER GORDON was born in 1951 in New York City. He began playing piano at the age of seven and switched to clarinet at nine. At the age of thirteen, Gordon moved with his family to Munich, Germany. In Munich, Gordon studied saxophone with Don Menza and music theory with Peter Jona Korn. He received his Bachelor of Arts in music from the University of California (San Diego), where he studied composition with Kenneth Gaburo and Roger Reynolds. Gordon further pursued graduate studies at the Center for Contemporary Music at Mills College, where he studied with Robert Ashley and Terry Riley. In 1995 Peter Gordon was named Assistant Professor of Contemporary Music at The College of Santa Fe, New Mexico. Peter Gordon first gained attention with his Love of Life Orchestra (LOLO),

which he founded in New York in 1977. Working with LOLO—which has ranged in size from a trio to over a dozen of New York's top musicians—Gordon has performed hundreds of concerts internationally. He has composed music for many plays and music-theater works, winning an Obie award in 1985 for his score *Falso Movimento's Otello*. Gordon's music has been featured in the work of leading dance companies, including those of Alvin Ailey, Stephen Petronio, Donald Byrd, Bill T. Jones/Arnie Zane and Molissa Fenley. His score for Bill T. Jones'/Arnie Zane's *Secret Pastures* received a Bessie Award in 1985. Gordon's music was featured in John Patrick Shanley's film *Joe Versus the Volcano*. He composed music for Viola Stephan's *The Journey From Petersburg to Moscow*, a German feature-documentary about Russia in 1991.

Peter Gordon's collaborations with video artist Kit Fitzgerald have been at the forefront of live video-music theater. Works include *The Passion of Passion* (1985), *Spectaccalo* (1987), *Return of the Animals*, and *The Return of the Native*, which was performed at the Brooklyn Academy of Music's Next Wave Festival in 1988. Their duet, *Tone Poems and Video Paintings*, toured Japan for the USIA in 1992. While Gordon and Fitzgerald were in Japan, Tokyo Broadcasting System produced *Painted Melodies, Spider's Garden*, an hour-long hi-definition television (HDTV) program featuring Gordon, Fitzgerald and their work, which won the 1993 Grand Prize (Video Art) at the International Electronic Cinema Festival in Montreux. Gordon's recordings can be found on Newtone, Lovely Music, CBS Masterworks, and ROIR.

Craig Hazen composes and produces music for commercials, CDs, TV and film through his company Zen Music, Inc., in New York and sister company, Joe & Co, in London. He lives with his wife and partner, Julie, and their son Mick, in Brooklyn Heights, New York.

Jill Kroesen has written and produced the following musical theater pieces: *Fay Schism Began in the Home*, about the similarity between a certain femme fatale and Hitler; *Who Is the Real Marlon Brando*, about the literary scene in New York City circa 1975; *Universally Resented*, about a bad relationship where one party wants to leave and the other revels in the mess of it; *Stanley Oil & His Mother*, a systems portrait of the Western World in twenty acts from the beginning of civilization until after the present; *The Original Lou & Walter Story*, about a fairytale farming community; *Excuse Me I Feel Like Multiplying*, about the similarities between the relationship of the USSR and the US and two girls fighting over a boyfriend; *The Lowell Jerkman Story*, about the problems of a male artist in a city with little territory and women with No Babies. Jill Kroesen has released two records: *Stop Vicious Cycles* on Lovely Music and *I Really Want to Bomb You/Jesus* on Lust/Unlust. Jill Kroesen received a Bachelor of Arts (Music, 1972) and a Master of Fine Arts (Electronic Music and the Recording Media, 1974) from Mills College, where she studied with Robert Ashley and Terry Riley. She lives in New York City where she works as a video engineer.

Maggi Payne obtained music degrees from Northwestern University, the University of Illinois, and Mills College. For ten years she was a recording engineer in the multi-track facilities at the Center for Contemporary Music at Mills, where she is currently Co-director and teaches recording engineering, composition and electronic music. She also freelances as a recording engineer and editor.

She has had performances of her works throughout the United States, Europe, Japan, and Australia, has received two Composer's Grants and an Interdisciplinary Arts Grant from the

National Endowment for the Arts, and video grants from the Mellon Foundation and the Western States Regional Media Arts Fellowships Program. She has had honorable mentions from Bourges and Prix Ars Electronica and placed in the Barlow and Luigi Russolo competitions.

Works include *White Turbulence 2000, HUM 2, Sweet Dreams, Close-ups, Raw Data, Apparent Horizon, Minutia 0-13, Liquid Metal, Aeolian Confluence, Resonant Places, Desertscapes, Phase Transitions, Songs of Flight, Ahh-Ahh (ver 2.1), Airwaves (realities), White Night, Subterranean Network, Crystal, Solar Wind, Ling, Scirocco, Transparencies* and *HUM.*

Her works are available on the Lovely Music, Music and Arts, CRI, Centaur, MMC, Asphodel, Frogpeak, and Digital Narcis labels and on the Mills College Anthology.

PAUL ROBINSON was born in London in 1949. He was educated at York University and Mills College in Oakland, California. As a composer he has had works performed by the Northern Sinfonia, Scottish Ballet, the Hilliard Ensemble and many chamber ensembles. He teaches music at Salford University as well as directing his own performing ensemble "Harmonie Band," which specializes in contemporary music and new music for silent film. He lives in West Yorkshire in Britain.

ROBERT SHEFF ("BLUE" GENE TYRANNY) was born in San Antonio, Texas in 1945. As a composer and pianist, he has toured in solo and group concerts throughout the USA, Europe, Canada, Mexico, Brazil and Japan. He has composed electronic, instrumental and vocal works, many film and video soundtracks, and scores for dance (Trisha Brown, Stefan Zawerucha, Tim Buckley) and theater (Otrabanda Company). He has performed with many other artists and on many recordings (Robert Ashley, Peter Gordon, Laurie Anderson, John Cage, Iggy Pop, Carla Bley, Bill Dixon and others), and writes the "Avant-Garde" section of the All-Music Guide (Miller-Freeman, 1993–99). His recent pieces include *The Driver's Son* (Empathy) (1989–99), an audio-storyboard for voices, orchestra and electronics, *His Tone of Voice at 37* (1999) for voice and chamber orchestra, *Nocturne With and Without Memory* recorded by pianist Lois Svard (Lovely Music), *The De-Certified Highway of Dreams*, recorded by Double Edge (CRI), *Free Delivery*, a collection of live concerts (Lovely Music), *Country Boy Country Dog*, a twenty-five-year project for orchestra, electronics and environmental sounds (Lovely Music), and *Somewhere in Arizona 1970* for baritone and electronics ("Imaginary Landscapes," Elektra/Nonesuch). He received a Bessie for Composition, a NYFA Composer Fellowship, and a 1998 NYSCA grant. His music is the subject of chapters in Cole Gagne's *Sonic Transports* (de Falco, 1990), and *Soundpieces 2* (Scarecrow Press, 1993), William Duckworth's *Talking Music* (Schirmer Press, 1995), and Kyle Gann's *American Music in the Twentieth Century* (Schirmer, 1997).

Composers' Selected Discographies

Robert Ashley

Dust: opera; 2000 (Lovely Music, 51006-2 x2)
Robert Ashley: String Quartet Describing the Motions of Large Real Bodies; How Can I Tell the Difference; 1999 (Alga Marghen, Plana-A 10NMN.030)
Your Money My Life Goodbye; 1999 (Lovely Music, 51005-2)
Atalanta (Acts of God): opera; 1997/1985 (Lovely Music, 53301-2 x2)
in memoriam . . . Kit Carson: opera, excerpt on "Ten Years of Essential Music"; 1997 (Monroe Street, 60101)
Automatic Writing: Purposeful Lady Slow Afternoon; She Was A Visitor; 1996 (Lovely Music, 51002-2)
Superior Seven; Tract; 1996 (New World Records, 80649-2)
Love Is A Good Example: on "A Confederacy of Dances, Volume 2"; 1995 (Einstein Records, EIN 003)
eL/Aficionado: opera; 1994 (Lovely Music, 51004-2)
Outcome Inevitable: on "Outcome Inevitable," the Relâche Ensemble; 1994 (O.O. Discs, 18)
The Producer Speaks: on "Sign of the Times," Thomas Buckner, baritone; 1994 (Lovely Music, 53022-2)
Van Cao's Meditation: on "With and Without Memory," Lois Svard, piano; 1994 (Lovely Music, 53051-2)
Factory Preset: on "A Chance Operation, John Cage Tribute"; 1993 (Koch International, 3-7238-2 Y6x2)
Improvement: opera; 1992 (Elektra/Nonesuch, 79289-2)
Perfect Lives: opera for television (1983); 1991 (Lovely Music, 54917-2 x3)
Odalisque: on "Full Spectrum Voice," Thomas Buckner, baritone; 1991 (Lovely Music, 53021-2)
Yellow Man with Heart with Wings; 1990 (Lovely Music, 51003-2)
Private Parts (The Record): The Park; The Backyard; 1990/1978 (Lovely Music, 51001-2)
Atalanta Strategy: videotape; 1988 (Lovely Music, 53304-3)
Music Word Fire and I Would Do It Again (Coo Coo): The Lessons; videotape; 1988 (Lovely Music, 54908-3)
Perfect Lives: opera for television; videotape; 1987/1976 (Lovely Music, 54917-3)
Music with Roots in the Aether: seven two-hour programs on videotape; 1987 (Lovely Music, 57700-3)
Music Word Fire and I Would Do It Again (Coo Coo): The Lessons; 1981 (Lovely Music, 54908-1)
The Bar: from "Perfect Lives"; 1981 (Lovely Music, 54904-1)
Interiors without Flash, on "Big Ego"; 1979 (Giorno Poetry Systems, GPS 012-013)

Sonata: Christopher Columbus Crosses to the New World in the Nina, the Pinta and the Santa Maria Using Only Dead Reckoning and a Crude Astrolabe: on "Just for the Record," "Blue" Gene Tyranny, piano; 1979 (Lovely Music, 51062-1)
In Sara, Mencken, Christ and Beethoven There Were Men and Women; 1974 (Cramps, CRSCD 103)
Purposeful Lady Slow Afternoon: on "Electronic Sound"; 1971 (Mainstream, MS-5010)
She Was A Visitor: on "Extended Voices," performed by the Brandeis Chamber Chorus; 1967 (CBS Odyssey)
The Wolfman; 1966 (Source 4, Composer-Performer Editions)
Untitled Mixes; The Wolfman: on "Explosions," the Bob James Trio; 1965 (ESP, 1009-2)
in memoriam . . . Crazy Horse (Symphony): on "Music from the ONCE Festival"; 1964 (Advance)

David Behrman

Wave Train, Music from 1959 to 1968: Canons; Ricercar; Wave Train; Players with Circuits; Sounds for a Film by Bob Watts; Runthrough; 1998 (Alga Marghen, B 5NMN.020
On the Other Ocean; Figure in a Clearing; 1996/1978 (Lovely Music, 51041-2)
Refractive Light: on "Musique Submergides"; 1994 (Nova Era, 2002)
A Traveller's Dream Journal (EWR-LAX): on "Utopia Americana"; 1992 (New Tone, 6707)
Navigation and Astronomy: on "Music from Japan," Kazue Sawai, koto; 1992 (Classic Masters, 1027)
Unforeseen Events: with Ben Neill; 1991 (Experimental Intermedia, XI 105)
All Thumbs: with Petr Kotik and Ben Neill, on "Virtuosity with Purpose"; 1991 (Ear-Rational, 1034)
Leapday Night: Interspecies Smalltalk; A Traveler's Dream Journal; with Takehisa Kosugi, Ben Neill and Rhys Chatham; 1990 (Lovely Music, 51042-2)

Philip Glass

Piano Music; 1999 (Pianovox, PIA 520)
Dracula; 1999 (Nonesuch, 79542)
Aguas da Amazonia; 1999 (Point Music, 289 464 064)
the CIVIL warS: a tree is best measured when it is down: Act V–The Rome Section; 1999 (Nonesuch, 79487)
Koyaanisqatsi; 1998 (Nonesuch, 79506)
Circles; 1998 (Materiali Sonori, 90104)
Symphony No. 2; Interlude from Orphée; Concerto for Saxophone Quartet and Orchestra; 1998 (Nonesuch, 79496)
"Heroes" Symphony; 1997 (Point Music, 454388)
Kundun; 1997 (Nonesuch, 79460)
Music in Twelve Parts; 1996 (Nonesuch, 79324)
Joseph Conrad's The Secret Agent; 1996 (Nonesuch, 79442)
String Quartets 2–5; 1995 (Nonesuch, 79356)
La Belle et la Bête; 1995 (Nonesuch, 79347)

Two Pages; Music in Contrary Motion; Music in Fifths; Music in Similar Motion; 1994 (Nonesuch, 79326)
Music with Changing Parts; 1994 (Nonesuch, 79325)
"Low" Symphony; 1993 (Point Music, 438150)
Itaipu; the Canyon; 1993 (Sony, SK 46352)
Glass Organ Works; 1993 (Catalyst, 61825)
Hydrogen Jukebox; 1993 (Nonesuch, 79286)
Anima Mundi; 1993 (Nonesuch, 79329)
Einstein on the Beach; 1993 (Nonesuch, 79323)
1000 Airplanes on the Roof, 1989 (Virgin, CDVE 39)
Solo Piano; 1989 (CBS, MK 45576)
The Thin Blue Line; 1989 (Nonesuch, 79209)
Music in Twelve Parts; 1988 (Virgin, CDVEBX 32)
Dance Nos. 1-5; 1988 (CBS, M2K 44765)
Powaqqatsi; 1988 (Nonesuch, 79192)
DancePieces; 1987 (CBS, MK 39539)
Akhnaten; 1987 (CBS, M2K 42457)
Songs from Liquid Days; 1986 (CBS, MK 39564)
Mishima; 1985 (Nonesuch, 79113)
Satyagraha; 1985 (CBS, M3K 39672)
The Photographer; 1983 (CBS, MK 73684)
GlassWorks; 1982 (CBS, MK 73640)
North Star; 1977 (Virgin, 91013)

Alvin Lucier

Theme: Music for Piano with Magnetic Strings; Theme; Music for Gamelan Instruments, Microphones, Amplifiers and Loudspeakers; 1999 (Lovely Music, 55011-2)
Panorama: Wind Shadows; Music for Piano with One or More Snare Drums; Music for Piano with Amplified Sonorous Vessels; 1997 (Lovely Music, 51012-2)
Fragments for Strings: Arditti String Quartet; 1996 (Disques Montaigne)
Clocker; 1994 (Lovely Music, 51019-2)
Music on a Long Thin Wire, 1992/1980 (Lovely Music, 51011-2)
Self Portrait: on "Upper Air Observation," Barbara Held, flute; 1992 (Lovely Music, 53031-2)
Nothing is Real: on "Hyper Beatles 2," Aki Takahashi, piano; 1991 (Eastworld)
Crossings: In Memoriam Jon Higgins; Septet for Three Winds, Four Strings and Pure Wave Oscillator; Crossings; 1990 (Lovely Music, 51018-2)
"I am sitting in a room"; 1990/1981 (Lovely Music, 51013-2)
Music for Alpha Waves, Assorted Percussion, and Automated Coded Relays: on "Imaginary Landscapes"; 1989 (Elektra/Nonesuch, 79235-2)
Sferics; Sound on Paper; Music for Pure Waves, Bass Drums and Acoustic Pendulums; 1988 (Lovely Music, 51017-1)
Still and Moving Lines of Silence in Families of Hyperbolas, 5-8; 1985 (Lovely Music, 51016-1)
Still and Moving Lines of Silence in Families of Hyperbolas, 1-4; 1983 (Lovely Music, 51015-1)
Music for Solo Performer; 1982 (Lovely Music, 51014-1)

Bird and Person Dyning; the Duke of York; 1975 (Cramps)
Vespers: on "Electronic Sound"; 1971 (Mainstream, MS-5010)
North American Time Capsule: on "Music of Our Time"; 1967 (CBS Odyssey)
"I am sitting in a room"; 1966 (Source Record)

Gordon Mumma

Studio Retrospect: Retrospect; Music from the Venezia Space Theatre; The Dresden Interleaf 13 February 1945; Echo-D; Pontpoint; Epifont; 2000 (Lovely Music, 51093-2)
Pontpoint; Mesa; Fwyyn; 1987 (Lovely Music, 51092-1)
The Dresden Interleaf 13 February 1945; Megaton for Wm. Burroughs; Music from the Venezia Space Theatre; 1979 (Lovely Music, 51091-1)
Retrospect; Schoolwork; 11 Note Pieces and Decimal Passacaglia; Echo-D; Epifont; Horn; and Schoolwork; (Slowscan, Vol.9 Compact-cassette)
Faisandage et Galimafrée; (Opus One, 129)
Echosynodiae; Truro Synodicle; Tao Particle No 4001; (Deep Listening Catalog)
11 Note Pieces and Decimal Passacaglia with Octal Waltz: Linda Burman-Hall, harpsichord; (Musical Heritage Society, 513988A)
Hornpipe: on "Electronic Sound"; 1971 (Mainstream, MS-5010)
Cybersonic Cantilevers; (Folkways, FTS-33904)

Pauline Oliveros

Six for New Time for Sonic Youth: on Sonic Youth's "Goodbye 20th Century"; 1999 (SYR 4).
Live at the Ijsbreker: with David Gamper; 1999 (JdK003)
Pauline Oliveros in the Arms of Reynols; a remix of live concerts of Oliveros and the Deep Listening Band with Reynols' White Tapes; limited, numbered and spraypainted edition of 100; 1999 (whi21)
Humayun's Tomb: on "Riverrun"; 1999 (Wergo 6307-2)
Non-Stop Flight: the Deep Listening Band; 1998 (Music & Arts, 1030)
A Poem of Change: on "Lesbian American Composers"; 1998 (CRI 780)
Carrier: with Andrew Deutsch and Peer Bode; 1998 (Deep Listening Publications, PO-CD-8)
In the Shadow of the Phoenix: on Driftworks; 1997 (Big Cat, 4 CD set)
Epigraphs in the Time of Aids: on "Suspended Music"; with Deep Listening Band; 1997 (Periplum, 010)
Alien Bog; Beautiful Soop (1967): 1997 (Pogus Productions, 21012)
Bye Bye Butterfly: on "New Music for Electronic and Recorded Media"; 1997/1977 (CRI CD728)
Pauline Oliveros Electronic Works: I of IV; Big Mother Is Watching You; Bye Bye Butterfly; 1997 (Paradigm PD04)
Ghostdance: Pauline Oliveros, Julie Lyon Rose, voice; David Gamper, Djembe/Expanded Instrument System; 1995 (Deep Listening Publications, PO-CD-7)
Tosca Salad: Deep Listening Band with guests; 1995 (Deep Listening Publications, DLB-CD-5)
Sanctuary: Deep Listening Band with guests; 1995 (Mode, 30046-2)

Pauline Oliveros and American Voices: St. George and the Dragon; In Memoriam, Mr. Whitney; with American Voices, Neely Bruce, conductor; 1994 (Mode, 30040-2)
The Ready Made Boomerang; 1991 (New Albion, NA 044)
Troglodyte's Delight: Deep Listening Band and guests; 1998/1990 (O.O. Discs, ¿What Next? WN 0003)
Crone Music; 1990 (Lovely Music, 51903-2)
Deep Listening; 1989 (New Albion, NA022)
Tara's Room; 1988 (Deep Listening Publications, cassette)
The Roots of the Moment; 1988 (hat ART 6009)
Sounding Way: with Guy Klucevsek; 1986 (Pauline Oliveros Publications, cassette)
The Wanderer; 1984 (Lovely Music, 51902-1) Out of print.
Accordion and Voice; 1992 (Lovely Music, 51901-1) Out of print.

Roger Reynolds

Watershed IV; Eclipse; The Red Act Arias; 1999 (Mode, 30070-9, DVD)
The Paris Pieces: Archipelago; Autumn Island; Fantasy for Pianist; Odyssey; Summer Island; 1995 (Neuma Records, 450-91)
Versions/Stages I–V: on "Electroacoustic Music"; 1993 (New World Records, 80431-2)
Not Only Night: on "SONOR Ensemble of the University of California"; 1993 (CRI, 652)
The Behavior of Mirrors: on "New Music with Guitar, Volume 5"; 1993 (Bridge Records, 9042)
Voicespace: The Palace (IV); Eclipse (III); Still (I); 1992 (Lovely Music, 51801-2)
Personae; The Vanity of Words; Variation; 1992 (Neuma Records, 450-78)
Transfigured Wind IV: on "Electro-Acoustic Music: Classics"; 1990 (Neuma Records, 450-74)
Four Etudes: on "Flute Force: Music for Flute Quartet"; 1990 (CRI, 581)
Archipelago: on "Music Composed at IRCAM: The Eighties"; 1990 (MPO/France 0002A)
Whispers Out of Time; Transfigured Wind II; 1990 (New World Records, 80401-2)
The Vanity of Words on "Computer Music Currents 4"; 1989 (Wergo, 2024-50)
Coconino . . . a shattered landscape: on "Arditti: Arditti String Quartet"; 1989 (Gramavision, 79440)
Autumn Island: on "Neuma New Music Series, Volume 2"; 1988 (Neuma Records, 450-72)
Distant Images: Aether; Less Than Two; 1987 (Lovely Music, 51803-1)
The Emperor of Ice Cream: on "America Sings: The Non-Traditionalists"; 1980 (Turnabout TV34759, The Moss Music Group, Inc.)
. . . from behind the unreasoning mask: on "Works by Paul Chihara, Chou Wen-Chung, Earl Kim, Roger Reynolds"; 1977 (New World Records, 80237-2)
Ambages: on "Twentieth-Century Flute Music"; 1975 (Nonesuch, HB-73028)
Ambages: on "Orchestral Space"; (Japan Victor, SJV-1513)
Blind Men: on "The Gregg Smith Sound"; (CRI, SD241)
Fantasy for Pianist: on "New Music for Piano(s)"; (Mainstream, MS-5000)
Roger Reynolds: Electrical/Instrumental Music; (CRI, SD285)
Quick Are the Mouths of the Earth: on "Spectrum: New American Music, Volume 1"; (Nonesuch, 71219)

Terry Riley

The Book of Abbeyozzud: David Tanenbaum, guitar; with Gyan Riley, guitar; Tracy Silverman, violin; William Winant, percussion; 1999 (New Albion, NA106)

Lisbon Concert: Terry Riley, piano; 1996 (New Albion, NA087)

In C: 25th Anniversary Concert; Terry Riley, Rova Saxophone Quartet, Henry Kaiser, Jaron Lanier, among others; 1995 (New Albion, NA071)

Chanting the Light of Foresight: Rova Saxophone Quartet; 1994 (New Albion, NA064)

Cactus Rosary: on "New World," performed by ArrayMusic; 1993 (Artifact Music, ART006)

The Padova Concert: music from The Harp of New Albion and Salome Dances for Peace; Terry Riley, piano; 1992 (Amiata Records, ARNR 0292)

June Buddhas: from Mexico City Blues; Brooklyn Philharmonic Orchestra, Dennis Russell Davies, conductor; 1991 (MusicMasters, 01612-67089-2)

In C; Music of a Thousand Springs; Zen (Ch'an) of Water; Terry Riley and Shanghai Film Orchestra, playing on traditional Chinese instruments; 1989 (Celestial Harmonies, 13026-2)

Salome Dances for Peace: Kronos Quartet; 1989 (Elektra/Nonesuch, 79217-2)

The Harp of New Albion: Terry Riley, piano; 1986 (Celestial Harmonies, 13018-2 x 2)

Cadenza on the Night Plain: Kronos Quartet; 1985 (Gramavisión, R22Z 79444 2)

The Ethereal Time Shadow; 1985 (Music from Mills, MC001)

No Man's Land; 1985 (Plainisphare, PL1267)

The Ten Voices of the Two Prophets: Terry Riley, vocals and synthesizers; 1983 (Kuckuck, 12047-2)

Descending Moonshine Dervishes; Songs for The Voices of Two Prophets; Terry Riley, electric organ; 1983 (Kuckuck, 12047-2 x2)

Shri Camel: Terry Riley, electric organ; 1978 (CBS, MK35164)

Le Secret de la Vie; 1974 (Philips)

Happy Ending; 1972 (Warner Bros., 46125)

The Persian Surgery Dervishes; 1972 (Shandar, 83501)

The Church of Anthrax: Terry Riley with John Cale; 1970 (CBS)

A Rainbow in Curved Air; Poppy Nogood and the Phantom Band: Terry Riley, electric organ and electric harpsichord; 1969 (CBS, MK07315)

In C: Terry Riley and members of the Buffalo NY State University Center of the Creative Performing Arts; 1968 (CBS, MK07178)

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