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**Sandra Desantos**

Alfortville, France

(Translated by Curtis Roads)

# Acousmatic Morphology: An Interview with François Bayle

The composer François Bayle (born 1932 in Tamatave, Madagascar) has long been affiliated with the Groupe de Recherches Musicales (GRM) in Paris. His book *Musique acousmatique* (Éditions Buchet-Chastel) was published in 1993, and a volume dedicated to the composer, *François Bayle—Parcours d'un compositeur* [*Path of a Composer*], was edited by Michel Chion in 1994. In 1997, François Bayle is retiring as director of the GRM after 30 years of service. This interview took place in June 1996 in Paris.

**Desantos:** François Bayle, what is the story of your early experiences in the musical world?

**Bayle:** My story begins with some difficult encounters. I was a music student in Bordeaux in the late 1950s, but the provincial conservatories were closed to contemporary music. So it was necessary to come to Paris. When I arrived I was behind with respect to the Parisians, because I did not know how things worked in this city, and it takes time to learn such things. And so it was difficult to make contact with the musical milieu that interested me.

**Desantos:** How did you meet Pierre Schaeffer, the founder of *musique concrète*?

**Bayle:** It was not easy to make contact with Schaeffer (see Figure 1), whose ideas of *musique concrète* interested me very much. He was famous, and each time I tried to meet him I was kept at a distance. So I tried to enter the Paris Conservatory to study with Olivier Messiaen, but the entrance examination for composers presupposed a very rigorous traditional background and was too difficult for me. I followed Messiaen's classes anyway, but only as an auditor, not as an official student. Then I took the Darmstadt summer course with Karlheinz Stockhausen. This was only a few weeks in the summer,

but nonetheless this encounter was important to me, because it was concentrated. After several years, I finally began to be nourished by the trickles from these various sources. There was an opportunity to enter the research department of the French Radio as a kind of administrative assistant attached to Pierre Schaeffer's office. Schaeffer had taken over the management of the Research Service of the French Radio, a large group of several hundred people. The Groupe de Recherches Musicales (GRM) was a small group of six or seven people within this larger organization.

**Desantos:** What was the situation of *musique concrète* at this time?

**Bayle:** It was emerging from purgatory. The notion of *musique concrète* was new and exciting in the early 1950s. Schaeffer published his book *À la recherche d'une musique concrète* [*Towards Research in Musique Concrète*] in 1952 (Éditions du Seuil). But by the late 1950s, there had been a number of conflicts. Schaeffer and Pierre Boulez parted in 1953, and even today Boulez attacks the idea of music for tape. Pierre Henry, Schaeffer's artistic collaborator in the early years, split in 1957. The disaster of Donaueschingen in 1953 was followed by a major scandal surrounding the performance of Edgard Varèse's *Déserts* for orchestra and tape in 1954.

**Desantos:** What was the nature of this scandal?

**Bayle:** It was partly the lack of preparation of the listener for this type of music. But it was also very poorly played, and the public could see that the performance was awful. So it could not be blamed entirely on the public's incomprehension. This scandal, which was written up in all the newspapers, just added to the sense that *musique concrète* was in a decrescendo.

**Desantos:** What was the essence of the split between Schaeffer and Boulez?

**Bayle:** There is never a sole reason. A conflict of personalities is not a sole reason. Boulez had an idealistic and abstract vision of composition, and

Figure 1. F. Bayle, P. Schaeffer, and B. Parmegiani in the GRM studios, in 1973.



Schaeffer had a concrete concept. For Boulez, technology had to be neutral and transparent in order to realize abstract ideas. In this view, technology follows the lead of an aesthetic concept. This is the viewpoint of an idealist.

**Desantos:** What was Schaeffer's position?

**Bayle:** For Schaeffer, technology was always evolving, and he felt that one must work with its limitations. We do not live in the ideal; we live in the real. Artists must exploit their medium's limitations as well as its capabilities. Eventually, an aesthetic vision emerges from practice, rather than being imposed from an idealistic philosophy.

The second reason for their conflict, which was probably the central reason, was that they both had the same type of personality: aggressive fighters who could not tolerate the existence of strong-willed people in their immediate circle.

**Desantos:** What about the split between the composer Pierre Henry and Schaeffer?

**Bayle:** It grew into a similar type of conflict. At first Henry was very flexible, because he was learning. But the day he arrived with his own identity the rupture began. Henry started working with the

choreographer Maurice Béjart, who offered a more complete artistic collaboration. Schaeffer was a researcher by nature and was not entirely comfortable with Henry's artistic temperament and its tendencies toward dramatic expressionism.

**Desantos:** So the situation of the GRM was tenuous in 1960.

**Bayle:** Yes. If Schaeffer had not taken the time to write his *Traité des objets musicaux* [*Treatise on Musical Objects*] (Éditions du Seuil, 1966) and had moved further in the direction of administration, the GRM would probably not have survived the 1960s. Schaeffer's disenchantment with artists had its positive side in that it led him to concentrate on his musical research, which was his passion after all. It was at this point that I met him. I was young and his disagreeableness did not bother me. I could ignore it. And I learned much from him. So the simultaneous influence of Messiaen, Stockhausen, and Schaeffer was like an oven heating on all sides: my cake was well baked!

**Desantos:** So you started composing *musique concrète* in 1960?

**Bayle:** No, not immediately. For two years I had ad-

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ministrative responsibilities with Schaeffer, so I could access the GRM studios only occasionally at night after work. But this administrative experience was important to me later when I became the director of the GRM. So it was a good investment.

**Desantos:** What was the first piece you composed there?

**Bayle:** I remember a day in the studio when I composed *L'oiseau moqueur* [*Mockingbird*] (1962) in one session. The piece enjoyed some success, and it was perhaps because of this piece that Schaeffer assigned me to the GRM.

**Desantos:** Did this mean that you started composing in earnest?

**Bayle:** No. I did not want to compose electroacoustic music immediately, because I saw that it was difficult. I knew that I needed more time to develop my capabilities. I wanted to learn more. And I must say that there were some very good composers at the GRM at this time, and I did not feel that I could compete with them.

**Desantos:** Who were these composers?

**Bayle:** Such figures as Bernard Parmegiani, Ivo Malec, Luc Ferrari, François-Bernard Mâche, Michel Philippot, and Iannis Xenakis, to name only a few. They were all known, and each had developed a great deal of skill in the studios. Just outside the GRM, there was Pierre Henry, whose *Variations pour une porte et un soupir* [*Variations on a Door and a Sigh*] was astonishing and original. And, of course, Stockhausen had just completed *Kontakte* and *Momente*. It was a terrifying period for a young composer, because there were many geniuses composing great works. I had the choice of either being a brash idiot, which would be quickly noticed, or being modest and waiting.

**Desantos:** You waited how long?

**Bayle:** About five years. Between 1962 and 1967, I concentrated on writing instrumental music, mostly for short films and radio documentaries. It was good training. I learned to work quickly, which is perhaps not a great quality—perhaps it is a defect—but it has sometimes served me well.

I mastered the trade of instrumental composition and orchestration. But after writing several dozen pieces, I no longer had any desire to write for conventional instruments. I was not a symphonist at heart.

## Return to the Tape Medium

**Desantos:** At what point did you return to the tape medium?

**Bayle:** I was “born” in the turbulent and nonlinear social upheaval of 1967 and 1968, and I am a product of those times.

**Desantos:** In which works did you find your own voice?

**Bayle:** *Espace inhabitables* [*Uninhabitable Spaces*] (1967), *Jeïta ou murmure des eaux* [*Jeïta or the Murmur of the Waters*] (1970), and *L'Expérience acoustique* [*The Acoustic Experience*] (1972).

**Desantos:** What work of yours would you recommend to a first-time listener?

**Bayle:** For a neophyte, I would say *Tremblement de terre très doux* [*Soft Earthquake*] (1978, Magison INA C 3002). It is my most mysterious work, but the mystery is simple, like in a child's fairy tale. A fairy tale can be complicated by the surreal logic of causality it describes, but there is also a stratum of comprehension possible for someone who is “fresh” to the world.

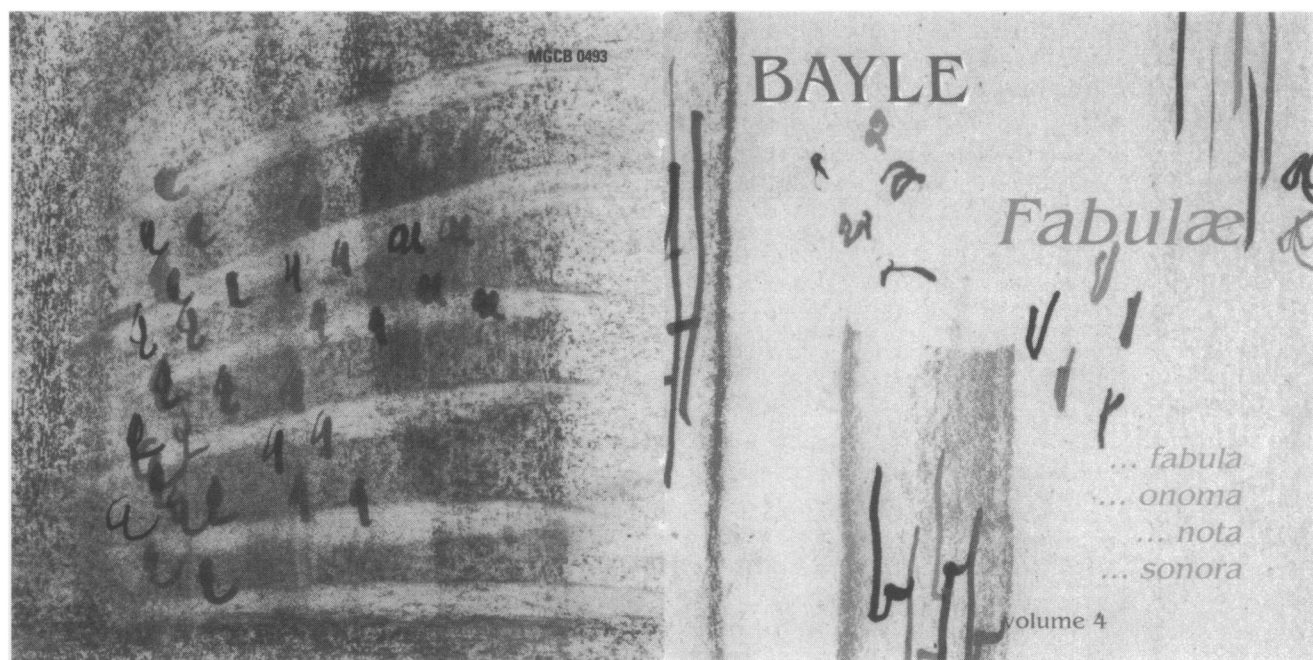
For a more educated listener, I would say that *Fabulæ* (1992, Magison MGCB 0493) and *Son Vitesse-Lumière* (1984, Wergo 2023–50) would be good introductions (see Figure 2). These are my most sophisticated works. In my most recent works I am going in the opposite direction—to simplify.

## Music in Space

**Desantos:** What is special about your electroacoustic compositions of the late 1960s?

**Bayle:** *Espaces inhabitables* was the result of two forces. On the one hand, there was the heritage of Messiaen and Stockhausen: juxtaposition and “moment form” constitute the general language of the piece. On a technical plane, the piece was conceived and constructed entirely from stereo images. Up to this point there had been many pieces in which the sounds emerged from one or the other loudspeaker in a kind of debate between two opposing voices. I was interested in exploiting the space between the loudspeakers to create sounds emerging with irregular motion from ambiguous loca-

Figure 2. Cover of *Fabulæ* by François Bayle.



tions. I have always been interested in detaching the sound from the loudspeaker, using the loudspeaker not as an instrument but as a projector of spatial images. In the 1960s, I saw that one could decouple the sound, to make it appear to emerge from a deep space behind the loudspeaker, or to make sounds fly between loudspeakers at different rates of speed. I sensed in this new possibility a great opening for our aesthetic perception. At the same time, I saw that one could enhance these effects by deploying multiple loudspeakers in a concert hall.

**Desantos:** You have spoken of the two worlds: a virtual space on a stereo tape and the spatial projection of a piece in a concert hall over multiple loudspeakers. How does a composer of electroacoustic music reconcile these two different spaces?

**Bayle:** The relationships between these spaces are extensive, in the philosophical sense. In the studio, one is faced with a minimal configuration, usually two or four channels and loudspeakers, or perhaps eight (with recent technology). This space is always a constraint.

**Desantos:** Yet in the hall, you can have more loudspeakers.

**Bayle:** Yes. For years I gave concerts with six identical loudspeakers: two in front, two in back, and two at the sides. Each loudspeaker was powered by a 40-W amplifier. It could not make a terribly big sound, and there were no extreme low or high frequencies, but it was still better than two loudspeakers.

Through many concerts, we had the chance to study the dynamics of group listening. Music is not a solitary art. It is born when it is played in public. It is true that one can compose a piece for a medium like the compact disc, but one never knows in what context this music is going to be played. Concerts provide a context for listening, for intersubjectivity. Now we project the sound on the Acousmonium—an orchestra of dozens of different loudspeakers distributed on the stage and around the audience (see Figure 3).

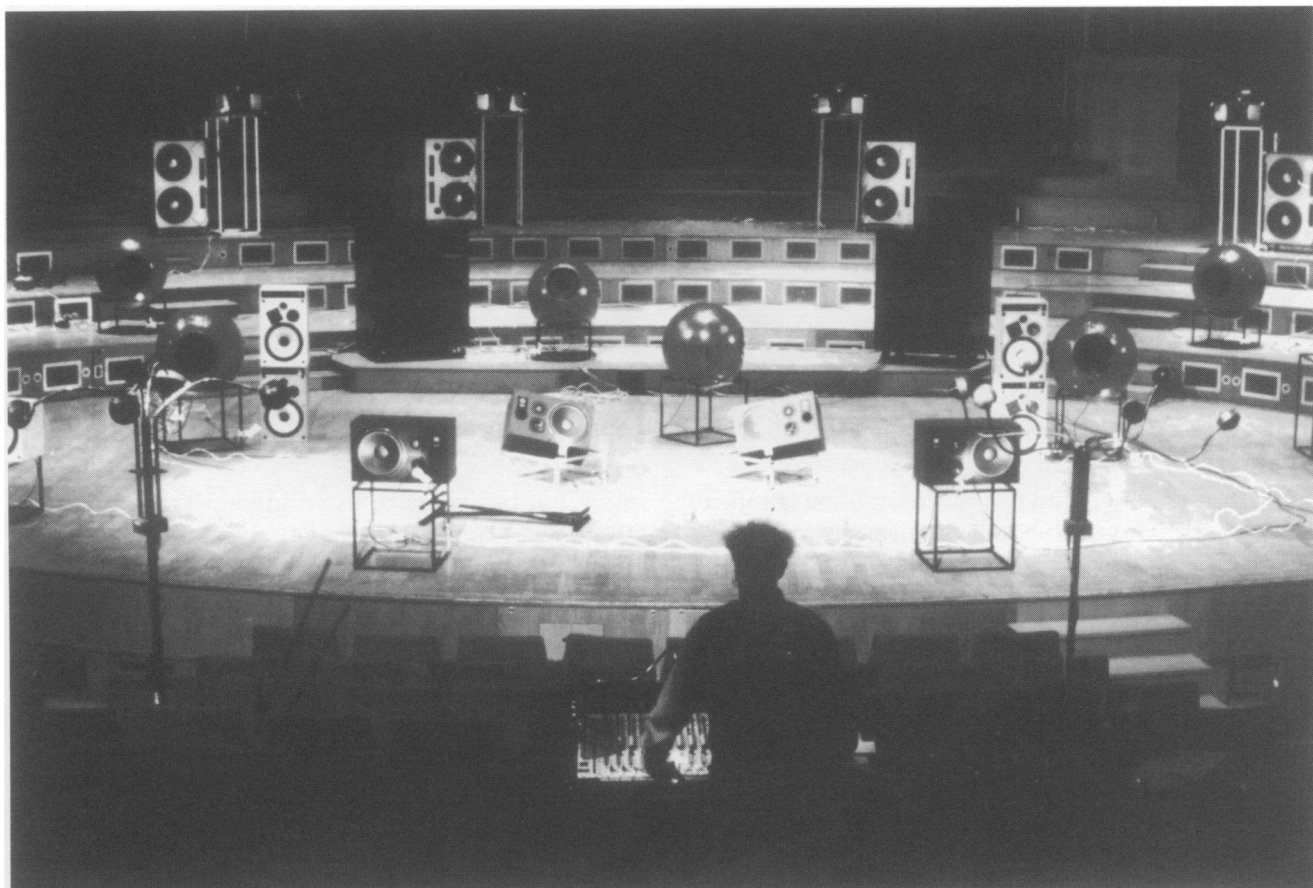
### The Performance of Tape Music

**Desantos:** How does one perform music on tape?

**Bayle:** The minute a work is fixed on tape, its life begins. It is meant to be performed. One can never

Figure 3. François Bayle at the controls of the Acousmonium, at Olivier Messiaen Hall, Maison de Radio France, Paris, on the occa-

sion of the Son Mu festival, 20 November 1995. (Photograph by Lioret, INA-GRM.)



find a concert hall that will replicate the studio conditions under which it was created. It is virtually impossible for the composer to write a detailed description of a piece and communicate unambiguously to all members of the audience via program notes. One cannot control all the parameters of performance. It depends on who shows up for the concert, whether they are idiots or connoisseurs, whether they are young or old, the type of cultural background they have, and so on. The hall itself is a variable, as is the playback system. All these givens demand a local aesthetic solution. They demand an interpretation, a "re-presentation" of the piece. The composer enriches the tape, compensating for the temporal determinism fixed on the medium by opening it up through spatial projection.

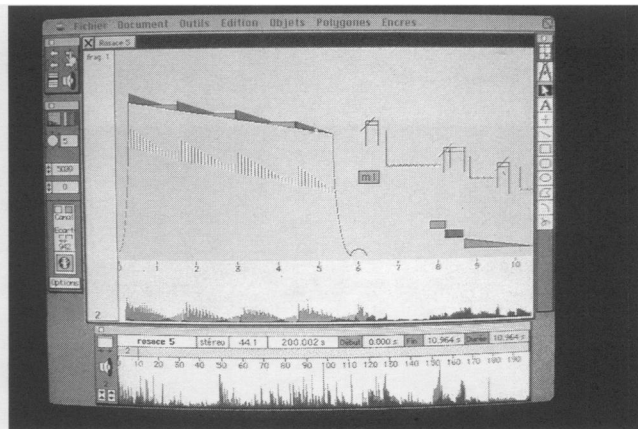
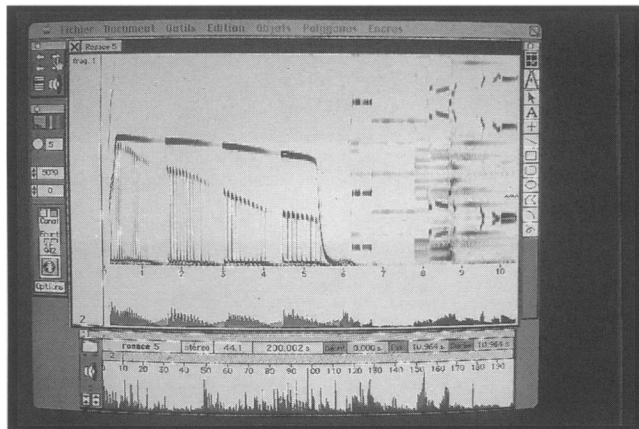
### GRM Research

**Desantos:** What is the legacy of GRM's research activities over the years?

**Bayle:** Research is absolutely essential, because it is the fuel in the fire of creation. Since the beginnings of *musique concrète*, one was confronted with the fundamental problem of transforming a trivial sound source (the snap of a rubber band, a tap on a wine glass, the closing of a door) into something complex and interesting. One needs a sound-transformation instrument to carry out this task. This instrument should allow one to add to the sound, to change its duration, and to redefine or reinforce certain characteristics. Pierre Schaeffer conceived the Phonogène (a tape-based transposer

Figure 4. Acousmographie images. (a) Sonogram of Rosace V by François Bayle. Frequency is represented in the vertical dimension, and time is on the horizontal axis. The overall amplitude curve is

shown at the bottom. (b) Graphical score created by drawing over the sonogram and then removing the sonogram altogether. Realization by François Bayle and Dominique Besson.



and time-stretcher) and the Morphophone (a tape recorder with ten variable delays) toward these ends. He also conceived of concerts where a sound projectionist performs the work in the concert hall, taking responsibility for the interpretation of a taped work. These directions already constitute a large inheritance. In my capacity as the director of the GRM, I have done nothing more than manage this immense fortune.

Each decade we invent a new and more refined Phonogène and Morphophone, which allows us to concentrate on the manipulation of sound morphology. At present, this means the GRM Tools software for the Macintosh.

**Desantos:** Schaeffer also introduced the idea of machines for assisting in the notation of electroacoustic music.

**Bayle:** Yes, he conceived the Bathygramme, which traced a written curve of sound energy. This concept has led more recently to the Acousmographie (see Figure 4), which traces not only a sound's amplitude, but also its spectrum, and which lets one inscribe color symbols on the spectrum to create a graphical documentation of a composition in time. This allows us to analyze sound morphologies in more detail.

**Desantos:** You use the word "morphology" a great deal. What does it signify?

**Bayle:** I can answer this in reference to another point in my philosophy, which is the world of catastrophe theory in the writings of René Thom. I share the opinion of this great scientist on mean-

ing. What has value to us is linked to meaning. But our concept of meaning is not simply a projection of our values. Sense is already built into objects by virtue of their form, their morphology. Certain visual signs are archetypes that our eye is naturally drawn to. And in the contour of sounds there is a natural support for meaning—a potential function. *Musique concrète* is nothing more than the recovery of morphologies of sound events applied to an aesthetic end. This is why our research focuses on tools for shaping the morphology of sound objects.

Another aspect of this research is analysis. How do we perceive electroacoustic music? Can we employ visual aids to indicate the traces of our perception? Can these traces evolve into a symbolic notation, not simply the artifact of a technical tool like the Bathygramme, which merely traces the curve of sound energy? It is merely an artifact, because the ear does not operate so mechanically. The ear can pick out different instruments and pitches from the sound-pressure curve, whereas if you look at this curve for an orchestra, it looks like chaos.

So the Acousmographie is an attempt to associate symbols along a timeline, as a way to represent the flow of music. Although the symbols are somewhat arbitrary at present, their size and position are exactly aligned to the sonogram analysis realized with the Fast Fourier Transform.

**Desantos:** I can imagine that this could be useful in the notation of mixed music for ensemble and tape, and for the documentation of electroacoustic compositions.

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**Bayle:** This is an important issue. We need graphical representations in order to catalog the past 50 years of electroacoustic music. Supposing that there have been a thousand interesting works composed during this period, who can recall all this polyphony in its moment-to-moment complexity? We need graphical representations to create a literature that one can quickly scan, like one leafs through a book to find a key phrase.

### The Acousmatic Composer

**Desantos:** What is the philosophy of what you call acousmatic music?

**Bayle:** In acousmatic music, one may recognize the sound sources, but one also notices that they are out of their usual context. In the acousmatic approach, the listener is expected to reconstruct an explanation for a series of sound events, even if this explanation is provisional. Like reading a detective story, one invents a scenario to find the chain of causality that explains the situation.

**Desantos:** Can one not find links of causality in traditional music? What is different about acousmatic music?

**Bayle:** The chain of intentionality is much clearer in traditional music. The instruments are always the same ones, and the compositional strategies are codified. Of course, the fashion may change: Debussy is quite different from Beethoven. But in acousmatic music, many of the links in the chain are deliberately left out.

**Desantos:** Which links?

**Bayle:** The instrumental sources and the technical means are often partially hidden. There is a tendency to think that the tools are not important, that what counts is what the composer brings to the tool. This is not entirely false, but I would say that the tool leaves its traces.

**Desantos:** What is the difference between electroacoustic music and acousmatic music?

**Bayle:** It is a question of the level of description. "Electroacoustic music" is a generic term that describes a technical means. It does not usually refer to a style or philosophy. The term "acousmatic" is our attempt to delimit a particular type of electro-

acoustic music and a school of composers working within this philosophy.

### Compositional Periods

**Desantos:** Can one divide your compositional works into several periods?

**Bayle:** I have often said that one does not have one life but many. Even in directing the GRM for 30 years, there have been many GRMs. One can probably divide my catalog in terms of the tools: analog tape recorders, analog synthesizers, MIDI systems, non-real-time computers, and real-time computers.

**Desantos:** Have your musical preoccupations remained constant?

**Bayle:** Yes and no. My name remains the same, but depending on the circumstances, my reactions are not always the same. One responds like an instrument, like a tam-tam. If you hit a tam-tam with a metal stick, or a soft beater, a piece of wood, or a rolled-up newspaper, you will obtain a different timbre. The response is always coming from the same sonorous body, but the excitation is different, so the resonance varies. In the studio, we are provoked by the conditions there, by the various interfaces provided by the technical tools. So I would say there are two major periods in my work: the standing period and the sitting period. This difference in work habits made for a different music. It is perhaps idiotic but it is true! [Laughs.]

What is more discernible for the listener is a change in attitude. I started making pieces by recording sounds with a microphone and then instigating natural acoustic processes to transform them. This mode of working began with *L'expérience acoustique* (1960) and lasted until the *Erosphères* (1980). These works were conceived for multiple-track tape recorder, with several simultaneous layers superimposed, and I used scissors for tape-splicing. The music is metaphorical and surrealistic, and the sound sources are not very hidden.

I have now entered a period where I want to hold the hand of the listener. That is to say, I want to make a music in which the listener can feel the body. The body is the instrument now, or more specifically, the gestures of my hands.

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**Desantos:** How is this concept played out in your most recent work, *La main vide*?

**Bayle:** Like a painter, my music is also the product of my hands, ultimately. My spirit selects and saves what my hands do, but it is the hands that perform the work. These imperfect gestures shape the sound's morphology, and serve as signs to the listener.

### Imperfections

**Desantos:** Do you feel limited by present technology?

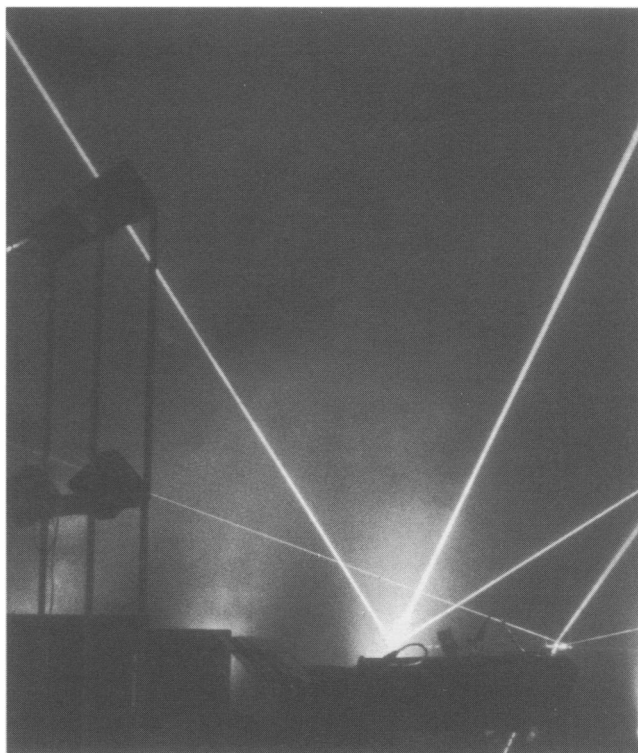
**Bayle:** I am an advocate of the position that one must accept and work with technical constraints, exploiting both their imperfections and their outstanding qualities. A great artist can create a work of art that transcends the medium, that makes one forget the medium.

**Desantos:** Certainly any instrument in the real world has limitations and defects. Consider the violin.

**Bayle:** Or even before the violin, the viol. This antique instrument did not project the sound very well. Its strings were unequal in strength and intensity, and the bow was short. But musicians wrote for the viol in such a way as to push the development of the instrument toward the modern violin. The composition literature made the designers stop and say, "Oh, that is what they want. We will now make an instrument that does what composers want it to do."

**Desantos:** You said that one can exploit technological defects as well as strengths.

**Bayle:** Yes. We should not be afraid of imperfect technology. It is often the confrontation with limitations and "faults" that stimulate one in making a piece. I am not alone in this view. Most composers of *musique concrète* are stimulated by what happens at the frayed edges of the technology. This is important. If we adopted a Boulezian attitude, we would say that defects are inadmissible. Upon their discovery, we would call the management and throw out the technician. If your attitude toward defects is punitive, then you cannot continue. But if one is . . . how can I say it?



**Desantos:** More open?

**Bayle:** Yes, but I want to say it in a less self-congratulatory way. If one can admit that one has faults—that one is imperfect—then when one encounters a defect outside of one's self, it is nothing but the alternative to the confrontation with our own imperfections! To accept imperfections outside of ourselves gives us a chance to forget or understand our own imperfections. [Laughs.]

I also admire the courage of people who refuse to accept their own defects and those of the external world. They want to change themselves and the world. This is also a necessary function. If everyone were like me, the world would evolve very slowly! [Laughs.]

But more seriously, I would like as a conclusion to direct your attention to a "concrete" lesson. To paraphrase the good doctor (Jacques Lacan!), I hope that the "defect" (he says: the unconscious) is structured like a language. It is in working with the roughness of morphological sound contours—its

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"prominences"—that its musical "pregnancies" are revealed, those which communicate musical life. I see that often one takes recourse in noise, in "randomness," to counteract the poverty of electronic processes. It is a wrong direction, that of the mathematics of chaos, which exalts the order of death.

The direction of life is, on the contrary, the conflict of complicated forms, of morphological concepts that "overdetermine" the movement of sound and the emotion of listening. The secret of the "mad craftsman" (René Char) is that the material is the "defect" of the form.