

DIGITAL MEDIA

Musical Digitization and Transformation

TANABE Mitsuru (TM): One has the impression that you have a fundamental attraction to new forms of media. You were an early user of CD and DAT formats, and lately your work on the Internet has gained quite a reputation, too

SAKAMOTO Ryuichi (SR): Yes, I would agree that I am interested in new media forms, and that I'm typically an "early user." When CDs first came out, I exchanged all of my analog records for CDs. The analog tape recorder that I was using in the studio got traded in for a digital one as soon as they were available. Back when I was still in YMO [Yellow Magic Orchestra, a seminal electronic pop music band which Mr. SAKAMOTO was a founding member of], I had already switched, for the most part, to digital. Ever since—except for occasions when I have wanted a particular analog sound for some special reason—I have been using a fully digital work environment. Why have I . . . ? I don't know, I guess I just like it better. Let me try to explain.

Maybe that it's just that I like the sense of quantification in "numericizing" the parameters that I'm working in. Once things have been made digital—expressed in digits—it doesn't matter how the hardware or media changes, the data gains a semipermanent state. Analog formats are where information has been placed on a carrier, imprinted on a substance, or otherwise given a temporary stability in an object, so that as the object loses fidelity the information loses fidelity with it. I am not immune to the appeal of analog formats' crafted glass-like transience, but at the same time, I'm also fascinated by the evolution towards numerical quantification in music that has been so important since I was in my teens. Since around the beginning of this century, in fact, there has been a steady movement towards finding ways to explore the potential of "digit"-ized music. Twelve-tone scales, serial technique . . . XENAKIS and others have been in the avant-garde of this experiment. I consider it a natural path of exploration.

Music is, at its most essential, sound waves. Information riding on air. It dissipates into the environment if not acted upon. And yet, about 100 years ago, the means for objectifying it, for placing it on media and turning it plastic were invented. This was followed, in the last decade by the development of ways to "digit"-izing it, so that it is no longer plastic, yet neither does it vanish. The ability to maintain it as pure information is revolutionary, in my opinion. If you consider human civilization as something that goes back 5,000 years, the changes in music in these 100 or even 10 years really are fantastic. Plus, through this digitization, the new ease of converting or manipulating it are really fascinating. By playing with the digits, you can create sounds that hadn't existed before.

TM: Last year your collaboration with IWAI Toshio, «Music Plays Images X Images Play Music» provided just such an opportunity—to use sounds to trigger visual data. How do you read this work? For example, as composing music while watching its visual counterpart, or playing visual compositions, or ...?

SR: I often compose music to moving images. I have made several film soundtracks, or, even if the visuals are not that specific, I often have visuals in mind, whether as a landscape I recall, or by looking at pictures, or imagining purely abstract plays of light. My sessions with IWAI were such that the visuals responded instantaneously with my performance, colors and shapes and motions appearing on the display as soon as I'd played them. It was not unlike using a trackball on a computer to draw lines or circles in making a composition on the screen. It was an experience of using a piano to paint pictures.

I'd want a certain icon to appear in a certain area, or want a fluttering motion in a given area, or I'd want a similar effect to happen in a different area of the screen, etc., so I'd play the appropriate area on the piano keyboard to get the effect I wanted. I was watching the screen the whole time. It was a system that IWAI designed, and I was more or less playing with his application, as it were. It wasn't really music and it wasn't really moving image, but rather exploring the place where the two meet. A kind of media art.

| TM: Yet aren't you also interested in exploring possibilities for converting visual images into music? Converting a PICASSO into music or? |
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SR: Well, eyes and ears are quite different sensory apparatus. The number of bits involved are different. The speed of processing is quite different. The incremental values that you need to assign before you can recognize the differences in the stimuli are something like two decimal places. For example, your eyes can concentrate on something for two hours, but if you tried converting this thing to sound, you would find that your ears simply aren't able to focus for that long.

The structure of films and music, for example, are completely different. COPPOLA's *Apocalypse Now* has a running time of something like three hours. The average viewer will have no problem watching this film in its entirety, but it's hard to think of a three-hour piece of music that can keep the listener engaged at a similar level. That's why it's perhaps misleading to assume that because a picture is a PICASSO, and a work of genius it can be transposed to music and maintain the same integrity. Simply taking a two-dimensional visual work and trying to convert it into music, a one-dimensional, unidirectional art form, is nonsense.

There are, however, phenomena where the disparate senses can enjoy a kind of sympathy. I once volunteered at Professor SUGISHITA Morihiro's research lab at Tokyo University, where they're studying the relationship between music and the brain. I was their guinea pig. They had me enter an MRI (Magnetic Resonance Imaging) machine, a huge thing costing millions of dollars, and try my hand at some musical compositions. Using the MRI, they were able to follow the various states that my brain would go through, and in so doing were able to isolate states wherein my brain was in "multi-sensory" mode. They were able to output the data and everything. The interesting thing was, that when my brain was in multi-sensory mode was not necessarily when I was listening to music. It was when I was imagining it—composing in my mind.

TM: Did you notate?

SR: I couldn't. You're not allowed to move. The idea is to restrict the subject, because when you move, other stimuli get recorded, such as the part of the brain that controls your musculature, for example. But when you compose while strapped into that machine, the activity in your visual field can be clearly isolated, because you're really "looking." When I compose, the score is in my mind, and from that music other landscapes and symbolics and abstract figures are invoked, and these become the basis for the composition. I'm hearing music in my head, so both the auditory and visual fields are finding expression, in addition to the physical. The associations that arise when I'm composing affect my musculature, making it tense up and loosen. My brain is getting a full workout.

TM: Would you say that using technology like IWAI's system, then, makes composition easier for you?

SAKAMOTO Ryuichi

Born in Tokyo in 1952. Graduated Tokyo National University of Fine Arts and Music with a Master's Degree. In 1978, formed YMO (Yellow Magic Orchestra) together with HOSONO Haruomi and TAKAHASHI Yukihiro, and immediately became recognized internationally for their unique "techno pop" stylings, and an important force in Japan's domestic pop scene. Since the break-up of YMO in 1983, SAKAMOTO has been active in a number of media including music, motion pictures, publishing, advertising and the Internet. He is especially well known worldwide for film soundtracks including Merry Christmas Mr. Lawrence and The Last Emperor (for which he shared the Academy Award for "Best Soundtrack for a Motion Picture" with cocomposers David BYRNE and CONG Su). His numerous other achievements include having been chosen to compose the theme song for the 1992 Barcelona Olympic Games, and the recent nationwide tour with Orchestra "f."



SR: I don't know if it would make composition *easier*, but it would make different music than having not employed it. A good example might be STRAVINSKY's *The Rites of Spring*, or some of the other early ballet pieces he was so prolific with. They are very odd pieces to look at. They seem filled with extraneous repetitions and awkward sudden changes. They were completely revolutionary for their time. When they were first staged half of the audience would throw garbage onto the stage. There was, literally, a real stink raised about them. But they were written to be *danced* to. So it was only normal that once a dancer had walked to a certain point on the stage, that they would pirouette or leap, or some other choreographic command would act upon him. Well, STRAVINSKY was merely writing to this subtext, and his composition reflected it. Film scores have a similar set of issues. Once the choreography is removed and the piece is made to stand as a purely musical statement it may be structurally odd, but it is still valid as a composition.

In my collaborations with IWAI there may have been a similar phenomenon at work. If it was only a musical composition three consecutive repeats would be boring, but in those collaborations repeating something twelve times would confront the audience with a different set of issues, of . . . "well then, what is this?" . . . and a certain



fresh leeway was granted the piece. But those are the sorts of things that we hope will come from such an experiment. Of course, collaborating with other genres provides some very interesting work, and some quite tedious.

media art. How do you see this phenomenon?

SR: Well, it's not a *social* phenomenon that I can really comment on, but I can say that from a tonal point of view, most of the technical progress today is based on improving the S/N [signal to noise, i.e. eliminating all but the "intended" sound] ratio, and this is something that, again, has been the direction for the entire 20th century. Now recently, with the advent of digital recording, there has been tremendous progress made towards this end. Noise can finally be, for all intents and purposes, eliminated. As I said before, in analog information processing, the medium, such as the tape used in analog recording, on which the information. These "properties" come through, to the technical mind, as noise—"unintended" data. Digital recording technology can, and does, aim for a zero-noise factor.

Yet in these last five years we've seen a lot of young people and major artists coming back to analog sounds. We start to hear the wow and flutter, the pops and scratches from the media they're using. I'm not sure why this is so preferential. I've had a lot of fun doing some DJ-ing lately, but I'm afraid that I can't define the attraction. Maybe it's because noise just somehow triggers something in the imagination. Maybe it's just that these kids are finally catching up, through a different medium, to the tonal world that John CAGE was into some 50 years ahead of everybody else on, or maybe

TM: Today in pop music, whether distinguished as "*Onkyo-ha*," which uses sounds not traditionally associated with music in non-musical, banal compositional structures, or "noise" music which is perhaps more reactionary, using anti-musical sounds in their compositions, both employ the snaps and pops of analog media and other kinds of aural detritus in their work.

SR: I suppose that people just can't deal with 100 percent artificial environments that long. Our societies keep being overtaken by advances in artificial environment technologies, but music originally comes from banging "things" together. Instruments, voices . . . they all come from a certain physicality. *Things*. The problem is that the music made with digital technology tends towards the virtual. What used to be the sound of rocks being banged together, hands being clapped . . . in other words things being hit in the air, and generating sound waves . . . that's no longer necessary to make music, and more expedient production methods, virtual methods, are being employed.

Yet what we see here, is that the sound of the needle scratching the vinyl surface becomes reappraised as an instrument. The vinyl disk exists as a physical thing, and a random factor of noise is generated in using it. The needle picks up on this . . . or perhaps it's more accurate to say that the physicality of the vinyl disk, not factored into the virtual production, and the needle are having a session—of *things* coming in contact with each other. They become *instrumental* in the music. Just as we're not ready to be completely surrounded in artificial landscapes, neither are we willing to be surrounded by artificial soundscapes. People want to listen to the existence of things, and the tonal qualities that happen when they collide.

In live performance, for example, you can assemble the best players for one special performance, and use satellites or the Internet to broadcast this to people all over the world, and have great performances available to people everywhere. And yet, people would generally rather travel great distances and pay expensive entrance fees to see musical performances among a limited number of other customers. If you think of the cost performance it makes absolutely no sense. The Rolling Stones, for example, travel the world with an entourage of some 300 people. And yet, both they and the people who come to see them want to see performances that require those logistics. This may sound dorky, but in the end, it may be that it's just the temperature of the room, being in the same physical space where the instruments are being played, and having the sound come to their ears, feeling the atmospheric pressure generated by the music hit their bodies . . . maybe that is the answer to the riddle. For some people, I'm sure that's it.

Another possibility would be that it is simply because today's reproduction technology isn't good enough. The displays don't have high enough of resolution, and the speakers are too flawed. Maybe once screen resolution equals or supersedes that of the human eye a lot of these problems will be resolved. Then again, it may be that our sensory apparatus is just that good—that it's just a dialectic between technology's

capacity for making available sensory experiences, and how they serve to elucidate, in increasingly concrete terms, how developed we are as a life form.

When I say "development," I mean something quite different from the "development" which most contemporary science strives for. Our "development" is a "development" which can be mistaken, and still automatically filter through to take in only the information that we desire, and disregard the rest. Our technology can't do this. For example, this, or any other conversation is necessarily, no matter how hard we strive, at least 50 percent grammatically incorrect. These statistics exist. A computer, on the other hand, can create texts that are 100 percent grammatically correct, yet odd or meaningless to the human ear. By the same token, it's nearly impossible to get a computer to create sentences which are not grammatically correct and still make sense. The fact that humans can do this "in their sleep" is really quite an amazement. I'd even go so far as to say that it's profound.

When humans interact with their environments, or with each other in communication, redundancy is immensely important. Redundancy issues come straight out of the S/N rulebook. It's NOISE. These creatures called human beings, maybe all living things, for that matter, can't live without some level of redundancy. Whether they're listening to music, or chatting away like we are, either are some form of communication, and having too much straight signal, not having enough noise, just gets on our nerves.

You can listen to folk music from anywhere on the planet, and you're always faced with the issue of how much of it is signal and how much noise. There are a lot of sounds in this problematic grey zone. It's probably some ancient form of wisdom, handed down through the generations, where people have always known to put a lot of noise into their instruments and performances. Western music is interesting in that, in the history of refining their instruments, from a certain point—and I'll be vague for the time being and tentatively say "since the modern period began"—they became quite focused on eliminating noise from their instruments. The developed form of this is that contemporary western instruments are quite noise-free. This is almost anomalistic, when you think about it. Whether in Japan or Somalia or almost anywhere else, the instruments are made with a great deal of attention and traditional wisdom to avoid tonally singularity, to bring the noise to its greatest depth.

In Japan, our *shamisen* [a three-stringed lute-shaped instrument] has to have its *sawari* [It is a play on the words for *to hinder*, and *to caress*, yet used in a tonal ambiance which the instrument produces.]. No *sawari*, no *shamisen*. Yet, if you looked at it in terms of reproducing music from the five lines of a western musical score, it's just another thing that's in the way. But it's not there by accident. Generations of *shamisen* makers have refined the *sawari* in order to make the *shamisen* a more enjoyable instrument. So you can say that these past ten years have seen the advent of new forms of artificial musical environments, and right now we're at the point where a desire for *sawari*like DJ noise has started to surface. People just got to have their noise. IN TERN ET Music and Real-Time Technology

> TM: Last year's «Ryuichi Sakamoto Playing the Orchestra "f" 1997» had you playing with an orchestra on the Internet. In a similar vein, it would seem absolutely like you to, say, play in Tokyo with an orchestra in New

York via the Internet . . . it seems like something that one can imagine only you pulling off

SR: It was an experiment with "real-time technology." I'm planning on doing an opera next year in a similar experiment, in fact. I spoke to professor MURAI Jun [Japan's premiere Internet authority] and other experts about this WIDE (Widely Integrated Distributed Environments) technology. It's apparently theoretically impossible. But there are ways around the theory. For example, the viewers/listeners can perceive it as real-time technology if we plan for the time-lags, then bring the parts together, and rebroadcast it as one whole.

I remember being taught as a child that "light can travel around the world seven and a half times in one second," which I imagined as being incredibly fast at the time. With this project I realize how dreadfully slow that is. I'm amazed lately at how long it takes light to get somewhere when you really need it. The result is, that it takes an electronic impulse about 130 milliseconds to go around the world once. Translated into pop music vernacular, that's an ordinary 16th note. If part of a musical composition is always one 16th note behind the rest, the piece will give you a kind of musical motion sickness. People will imagine that it is a mistake in the performance. Ears are far more sensitive than that. We've got to get around the speed of light or the performance won't work.

TM: And you have a methodology for composing to this gap?

SR: That's a secret! (laughs) I don't mean to repeat myself, but if I'm in Tokyo, and I want to transmit a certain sound, *jyang*! I make my sound. The best that I can hope for is that it arrives in New York, or wherever, about a 16th note later. So now we have player "B" in New York, who hears my delayed note, makes his decision, and responds with another, which, again, takes a 16th note to get here. Then I get to hear that. So each player has about one 8th note's delay within which to make their musical decisions. This barrier is completely impossibly unavoidable. But well, I may complain, but I'm still putting on this opera next year!! (laughs)

TM: So you'll compose something that *incorporates* the gap, or at least makes it feel natural?

SR: Well, those are possibilities. Writing music which either incorporates the gap, or emphasizes it, then when broadcasting it out on the web, calibrate the gaps . . . there are only a few options for dealing with this problem.

OPERA

Summarizing the Century

| TM: Could you please describe your |
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| plans for this opera in some greater |
| detail? |

SR: It is planned for September of 1999, with me performing from the Nippon

Budokan in Tokyo. The video imagery will be by TAKATANI Shiro [leader of Kyoto performance group DUMB TYPE], and computer generated imagery by HARADA Daizaburo [well-known visual artist and longtime Mr. SAKAMOTO's collaborator]. The structure and story will be developed by MURAKAMI Ryu [best-selling author] and ASADA Akira [charismatic economics associate professor/social philosopher] and myself. We're working on the story now. All I can tell you at this point is that what we're doing so far is not your typical narrative. Being an opera, it needs to hold up for at least two hours. We've got a general direction we're taking it in, but it's not going to be "about love," or something like that. Probably more like a collage.

TM: What language do you imagine it being sung in?

SR: I'd like to do it in several languages. As many as possible really, but I can't write what I don't understand, so it will probably be in Japanese and English, with perhaps a smattering of some half-baked Italian on the side.

There is meant to be a lot of different kinds of visual material employed in it, so even though I'm ostensibly its author, I'm not really sure if it'll be the kind of opera where someone comes onto the stage and sings their parts and all, really. (laughs) Even if we have opera singers, I think that expecting people to sing and act at the same time is a structurally flawed idea. This, of course, poses other presentation problems, so we need to bring in a lot of visual ideas. Once you've said the word "Opera," most people get expectations for a certain "look and feel" of the staging too, and here again, I'm not going to be much help. No lyrical verdant wood in my opera, I'm afraid. (laughs) I couldn't stomach it. We're looking at different ways to bring motion into the visual field via a number of visual phenomena.

| | SYMBIOSIS |
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| | On the Evolution of Life, and Miracles of |
| | the Universe |
| SR: As long as I'm doing an "opera" for | |
| 1999, I'm going to be completely | |
| ambitious and approach the music as a | |
| sort of personal summary of music from | |
| the 20th century. My take on it is that | |
| the 20th century was a brutal war- | |
| drenched period. ASADA Akira even | L |

proposed the commercial, kitsch catch copy for promoting the opera, "From the bloody 20th century towards the symbiotic 21st." (laughs)

The word "symbiosis" has become bandied around a lot in the newspapers and such here in Japan lately, though I wouldn't even pretend to assume exactly what percentage of the people on the street



really understand the concept. I myself don't really understand it, and so, under the heading of "researching the opera," I'm taking this opportunity to do some reading up. I had originally stated the idea with a kind of amateurish enthusiasm, but the more I actually research the concept, the more I understand what an important idea it is to realize. It involves the evolution of both life on this planet, and their relationship with the whole universe.

The sun and the planets, and then the earth were created something like 4.5 billion years ago. Then 500 million years later the land masses and oceans were formed and the atmosphere developed, later, the first life forms, and then finally, 4 billion years later human beings came along. The story of evolution and the story of symbiosis are one and the same. Some 4 billion years ago matter made the transformation into life form. This was the big evolution. We're just matter that happens to have undergone a very long period of complex structural articulation. I have no idea why. The fact that it happened, and by what process we came to arrive at this point have been pretty well explained, but the big one, why minerals decided at some point to become self-structuring protein producing RNA and DNA? This is anybody's guess. Anybody's guess, yes, but the fact these particular structures did arise gives the basis for a huge story; from the evolution of these substances, and their symbiosis on a grand scale as a structural foundation for a very local reading of our lives within the 20th century, and from that what we will take with us into the 21st century.

The fact that this extraordinarily particular material system, this emergence of "life" forms happened on this planet is frankly miraculous. And from then, during these 4 billion years, so many events occurred . . . huge meteorites colliding with the planet, and the atmosphere undergoing tremendous transformations . . . and yet life continued to evolve . . . again, we've only words like "miraculous" to describe it, yet it is, at the same time, so commonplace that we don't even



notice. It is even thought that 99 percent of the life forms that emerged on the planet have died out again. Only those few species, which have survived these terrible transformations are with us today. And we stand at the edge of it all.

TM: Do you have a concrete story (if indeed a "narrative" structure could be said to encompass all of this) worked out, or is that something still to be developed?

SR: Still working on it. One idea is to use the protagonist, surviving the 20th century, to focus these issues through. We're considering Julius Robert OPPENHEIMER ["the father of the atomic bomb"] right now. He was the leader of "the bomb"'s development, in the Manhattan Project. He was working at the U.S. Los Alamos atomic research facilities in New Mexico. Its present day counterpart would be something like the Santa Fe Institute. It was one of the most advanced research laboratories in the world in its time. I think that if we can get a handle on him, then we can reach through there and grasp many of the key issues concerning knowledge in the 20th century. This is still only one of the ideas in development, though

Another idea would be to continue to develop the fourth movement of «untitled 01» for Orchestra "f." Employing the audio and video of interviews with several people about "what it means to be saved," or combining text or taped materials in with the musical elements. I really enjoyed that compositional process, and would like to work in it again.

TM: Using the material from these interviews as a motif in the composition of the opera?

SR: Exactly. It has certain linguistic "message" elements to it, but I would be more interested in their musical value. You can approach this work for its linguistic content, its "meaning," as it were, or you can approach them as musical elements, and this gives it a neutral, media art-like quality that I like. In this sense, these interviews, used in this way, as well as the technical aspects, employing the Internet, and the gap issues that I spoke of earlier—how to integrate them, and how to control them—seem quite appropriate to the theme of symbiosis, and the concept of a shift into the new millennium. It should be quite a multi-layered, complex piece.

TM: The gap issues that you mention . . . have you any further comments on creative approaches to them?

SR: No, as I mentioned before, I can't talk much about that or I'll give away the game! (laughs) It's a matter of both that, and the fact that I'm still working on some of them. I've only got a year to resolve these things! I'm thinking of using three locations, to create a circle, so people can feel a "global" scale in the work. The choices about what I will do, and how I will solve these issues. I mean, the project seems perfectly suited to a global setting, with a sense of different times and spaces in symbiosis, even if there are gaps in it, and a few delays here and there! (laughs) I want people to at least gain a sense of coexisting in the same environment, and propose the opera within that space.

TM: When you mention three locations, besides Tokyo and New York, what do you imagine as the third location?

SR: Well, right now we're looking at the circuitry of various candidate



locations. It will probably get a bit overblown at the nation state level. (laughs)

TM: You will be exhibiting an installation at the ICC soon, won't you?

SR: It is still in the planning stages, and right now, what I have in mind is something similar, with information coming from somewhere on the planet being transmitted to the ICC, and triggering a piano. Something, again, that makes one feel a global presence. The development of the Internet has effected some interesting shifts in the nature of global awareness. The sense of distance has suddenly contracted. Almost to the point of disappearance.

| DIST | TAL MUSIC RIBUTION ight and the Internet | |
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| | | TM: Finally, I'd like to ask you about copyright issues. You submitted a text recently to the Asahi Newspaper concerning the role of JASRAC (Japanese Society for Rights of Authors, Composers and Publishers). |

SR: Well, it relates to much of what we've already been talking about here today, but I don't believe that with the Internet we've merely added one more mass medium to the mix. Those in charge of monitoring musical copyright laws behave as though the Internet were a natural extension following LPs and CDs. You know, "Here's a new distribution medium, and we should, of course, be in charge of policing it." They're saying that "We must act as an agency on the Net," and I don't agree. The text that went into the newspaper was a report of my presentation before JASRAC's monitoring body, the National Agency for Cultural Affairs' council on copyright issues. It's not a text that will change anything. It's just one more government council that meets every week, and invites a different speaker every week, and listens to their opinion. Nothing more. What's interesting is simply the fact that there are people in the world with these opinions, who assert them, and are invited to "on high" to do so. The next step is for me to go directly to the body I've authorized to administer my intellectual properties, JASRAC, and present my case to them. [On July 2nd, Mr. SAKAMOTO went to JASRAC and presented his request formally.—ed.]

Musical copyright includes things such as performance rights, etc. . . . altogether I think that there are about seven categories of license. According to JASRAC's present rules, all seven must be controlled by JASRAC: there are no partial listings, no exceptions. They must control all, or nothing. It is their rules, and those who've signed their contracts are expected to follow them. So when the Internet comes along, with its new potentials for distribution, considering distribution there as a separate issue goes against the very heart of JASRAC's policies, and they absolutely refuse to budge on the issue. Because I'm demanding that they recognize the Internet as a separate case, it creates quite a standoff.

The simplest way to solve it is for me to quit authorizing them to protect my copyright. You know, "We are of a different opinion, so I respectfully relieve you of your contractual obligations towards my musical properties." But that leaves me in a fix. I can't try and track down all of the times and places where my music is being used on TV and whatnot. And in this country there is only one organization for monitoring musical composition rights. You



would think that someone would consider it an obvious breach of anti-trust laws, but that's the status quo, and it's just being rammed down our throats without recourse. Since I don't have an option, I have to get them to recognize my position. It's the only way open to me.

With all existing rights it's only natural that jobs too big for the individual are consigned to large organizations. However, when it's a job that can be effectively managed by the individual, I believe that the option should be kept open to let the individual look after themselves. Projects on the Net can be managed by an individual, and I believe that I should be allowed to decide to manage my web presence myself, while still asking them to monitor other media, and collect a handling charge for doing any task which I authorize them to do. I believe that this is the normal way to conduct business. Sooner or later there will be organizations on the Internet capable of managing copyright issues. Because the Net does not involve only one country, there will naturally be many agencies which will appear, not bound to any one country's laws, free to compete within a global market for suppliers bearing valuable intellectual properties and sellers interested in them. It's normal market logic. Price would come down, service would go up, and the users would get the best deal that competition can provide.

The biggest difference between the Internet and other media is, to go back to our very first topic, the difference between analog and digital. Music has always been imprinted, in some way, on a medium in order to be sold. Thereby we have a music industry which is based on *things* being produced, managed, transported and sold, and the present music industry is made up of companies all along this chain. The chain has remained unbroken, from record company to sales venue, since reproduction technologies were invented—since music first became analog.

Now, with the Internet, music can be distributed in its digital state, and the whole industry is about to be turned on its head. Music becomes the property of its producer, not his management office. It can go directly from the artist to the end user—without passing through agencies of any kind. This is pretty revolutionary. I can't help the people who deal in the material aspects of the industry when they tell me that they have a right to control my music. All I can tell them is do what they do well in the "material" world. Then, if JASRAC, or anybody else, wants to come onto the Net, and offer competitive price/service contracts, it's not up to me to deny them their right to compete.

(This interview took place at ICC on June 18th, 1998.)

[] = Translator's Note Translation: David d'Heilly