It is rare to see a conventional instrument re-designed, using its mechanical qualities instead of its acoustical features. Nicolas Collins' "trombone propeller" is such a hybrid. An old trombone has been re-designed ("hot-wired") as a sophisticated and very convenient computer-controlling tool. The most obvious mechanical aspect of the instrument, the slide, is now used as a giant digital slide potentiometer. According to various configurations made on a small keyboard, also integrated into the instrument, it will control an extended range of parameters such as volume, pitch, and speed. The trombone controls an altered digital reverb unit, allowing the performer to make loops of sound and to process these loops in different ways, and a full set of sound sources: cassette, CD, radio, microphone, etc. The idea of the trombone is preserved thanks to a breath-control device and a small speaker that fits on the mouth piece.

THE IMPROVISATION MODERATOR

Collins has been using the instrument mainly in duets with improvisers, particularly with the English musician Peter Cusack. In these duets he takes fragments of the instrumentalist's sounds and plays them back processed in real time. Many of these duets are to be found on Collins' most recent CD, *100 of the World's Most Beautiful Melodies* (Trace Elements), on which musicians such as Cusack, Ben Neill, John Zorn, Christian Marclay, and Davey Williams appear.

interview with Nicolas Collins by Guy De Bièvre

The following interview was done after a solo concert at the Logos Foundation in Ghent, Belgium (15 October 1989), where Nicolas Collins had used pre-recorded materials: a Peruvian brass band, a language-teaching record, Collins' own CD, a Roy Orbison tune, and a Burt Bacharach and Hal David song as recorded by the Shirelles.


Nicolas Collins and Peter Cusack. photo by Susan Tallman
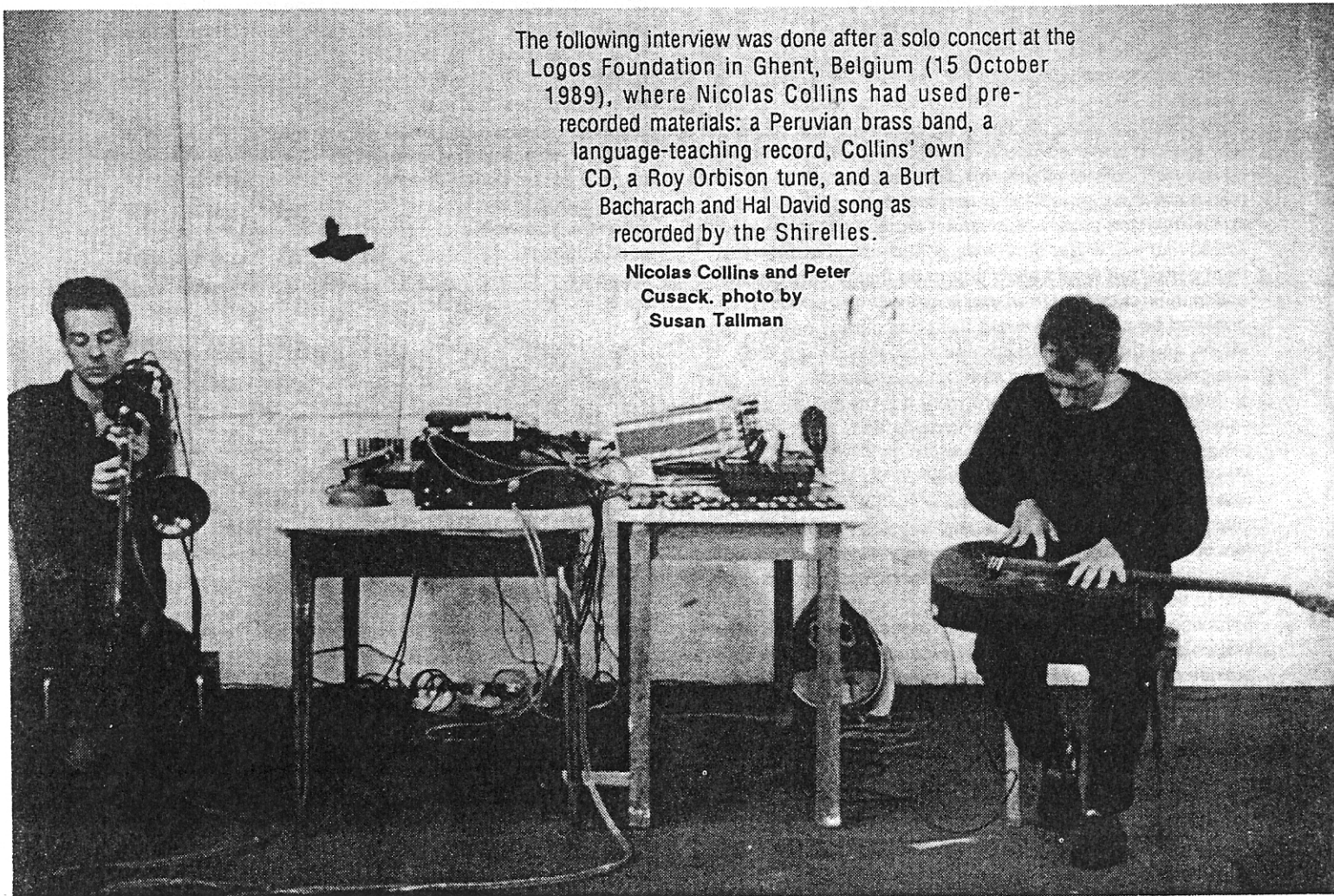
Guy De Bièvre: What is the genesis of the "trombone propeller"?

Nicolas Collins: In one of my previous works, *Devil's Music,* I used cheap digital delay sampler units to capture radio material. These were Electro Harmonix boxes, which were wonderful for what they did but they were extremely crudely constructed. They were forever breaking down and they were really limited to looping and pitch change and some rhythmic re-triggering. After doing that piece for a while I wanted to get involved in more flexible kinds of sampling and signal processing. However, I also wanted to be able to do stuff live rather than prepare samples on disc for subsequent playback with a typical sort of keyboard-oriented sampler. I thought of programming a micro-computer to input sound into the memory of the computer and then spit it back out. But all my more knowledgeable friends told me that this was a lot of programming and that it was difficult to get good quality sound this way because the computers were just barely fast enough. I heard the first part about it being difficult and time-consuming, and that's when I got scared. So I had this idea—from studying a few pieces of equipment that I could get access to—that it should be possible to take a digital reverb (or for that matter I could have chosen a more elaborate digital delay) and figure out a way to put it under computer control so that the commercial device took care of all the complicated fast stuff of encoding the sound into digital information and putting it back out again. The computer would adjust various parameters of the sound that you might otherwise adjust with knobs on the front panel, but would allow you to do things very quickly and with finer control than you could with the knobs. I acquired an old digital reverb from a company called Ursa Major, and that's what happened. This was before they designed these machines so that they were all software based. Instead there were a lot of actual little counter circuits and adder circuits and things like that. It is not necessary to go into all the technical details, except that what it meant was a certain chip would perform a certain function in the machine and it was very easy to pull out the chip, put in a connector, connect that to the computer, and have the computer emulate the behaviour of that chip—and emulate the "misbehaviour" of that chip. In other words, I could also make it operate outside of its normal range of behaviour. For instance, once I have made a loop of a sound I can shorten how much of it is being played back; this is very simple using this system, because it uses a counter that is counting through memory

The Trombone Propeller
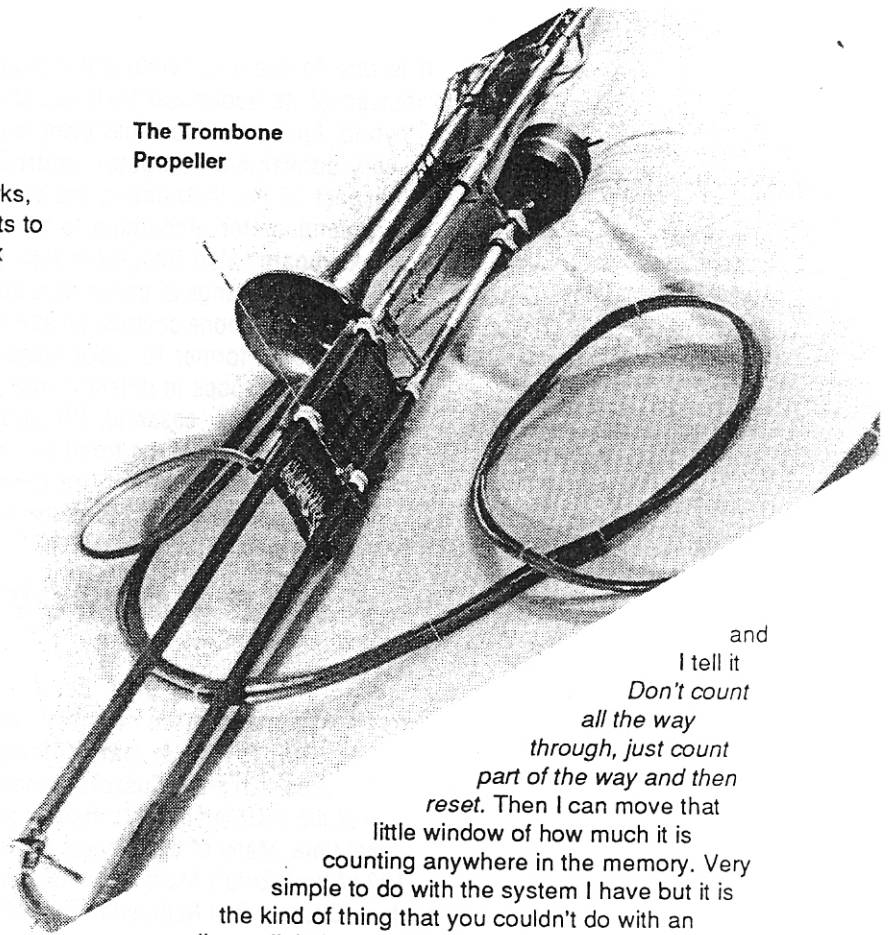
and I tell it *Don't count all the way through, just count part of the way and then reset.* Then I can move that little window of how much it is counting anywhere in the memory. Very simple to do with the system I have but it is the kind of thing that you couldn't do with an ordinary digital delay. The instrument began as a digital reverb rather than a digital delay—a digital delay usually has one output from its memory, like a tape loop with a single playback head. The way digital reverbs create the illusion of acoustic space is they actually calculate several output points at slightly different time delays to imitate the multiple echoes that make up a sound's behaviour in acoustic space. If I use the machine as a reverb you hear that as reverberant sound. If you make a loop in the machine, so that the sound doesn't die away, but is a

It tends to slow down musical development in an improvised setting where most players just like to jump in and run on ahead. It is difficult to run on ahead if something you did three minutes ago is still being beaten over your head by this guy who is on the opposite side of the stage from you.

frozen loop, all these multiple "taps" that the thing calculates add a very beautiful spatial quality to the sound. As I move to the programs in the machine to make the rooms larger, these taps begin to obscure the sound in a rather gorgeous way, like having

multiple echoes in a canyon or something like that. As a result the transformation of the sound is more than you would get with just a simple loop if you were making a delay loop or tape loop. It is a very subtle kind of timbral transformation that is not like any other electronic circuitry I know. It doesn't sound like a filter, it doesn't sound like a ring modulator, it doesn't sound like a distortion box. So it has a very peculiar voice to it that I find very appealing. It gives the machine a real personality, which is something I look for in designing electronic instruments—something which has sort of quirky charm.

So the box came first. I started doing a piece where I was sitting in front of it, manipulating knobs to control these various parameters, as I had in *Devil's Music*. At the same time I was doing these pieces for backwards electric guitars, with sound-driven strings, and those instruments had a very natural theatrical quality to them because they were big instruments and they looked like guitars, and they sounded a little bit like guitars, but a little unusual as well. This new box lacked that visual quality that the guitars had. So I decided to sort of mix up the *Devil's Music* technology with the guitars and look for something that I could control the system with that was very visual. The reasons I chose the trombone were threefold: one was that I happened to have a trombone around I had bought for $12 years earlier to control feedback with, by putting a microphone in the mouthpiece and aiming it at a loudspeaker, or you put a speaker on the mouthpiece and you aim it at the microphone; when you move the slide you get different harmonics. Secondly the image came to mind of the trombone as a very large slide-pot, like you'd have on a mixer. I could use the slide as a visible controller—when you push it out something would change in one direction and when you pull it would change in the other. Lastly, I could use the instrument as a *speaker*, because I didn't want to make what I call an "arbitrary" controller for this system. I didn't want it to be simply a prop or a theatrical object. I wanted there to be a *reason* to use the trombone that went beyond just *Oh, the slide is convenient*. To use it as a speaker was nice because of its acoustic quality. You could change the timbre of the sound subtly, by moving the slide. You can mute it. It has a very crude low-technology sound— it sounds like an old Victrola, an old gramophone. I thought that this sound quality contrasted nicely with the full range richness and "digital fidelity" that I got when I put the sound through large loudspeakers.

The mechanics of the instrument worked out so that the movement of the slide is coupled to an optical shaft-encoder, which is basically like a volume control, or, more accurately, a mouse, because it can go round and round and round, it doesn't stop at one point or the other. The slide is coupled to the encoder with a retractable dog-leash, such that when you move the slide in and out the leash goes around the shaft into the spring-load container and revolves it. On the slide there is a little key-pad, that looks like a sort of telephone key-pad for touch-tone, except that there are more keys, eighteen or twenty keys. When you move the slide and press different buttons it instructs the computer, which is doing the interpretation for this whole system, to increase or decrease a number in a certain register. So you press this button and you push the slide out and the value

counts up, you pull the slide back and it counts down. Then periodically, like a 120 times a second, the computer checks up on the digital reverb, it looks at the values that are in these registers that have been changed by the slide and it dumps these numbers into particular areas of the reverb to change particular aspects of the sounds; so one button might be a register that controls the pitch, in which case the instrument almost begins to look like a regular trombone, because you stand there and you have a loop of something and you push the slide out and the pitch goes down. Another button will control how long the loop is, another one will control where in the loop you are hearing this little window of sound. You can control how long the reverb time is, you can control which program you are listening to—all of these kinds of things. You can play the sound backwards, which is sort of the stupidest, dumbest, oldest electronic music trick in the world, except it can sound wonderful. Also you can jostle back and forth between playing the sound backwards and forwards, and it kind of freezes the sound—it's almost like scratching with a turntable. There are various modes on this where you can literally scroll through the sound as if you were moving a tape by hand across a tape head. Associated with the reverb is a box that has an amplifier for the speaker on the trombone, which is quite straightforward, and a small mixer allows you to select which channel of source material goes into the reverb for processing from the key-pad of the instrument. When I put pieces together I might have several different channels of material on tape, raw material, that I then process in performance, and I can switch between them. There can be a radio hooked up, and I can adjust its tuning from the key-pad on the instrument, using an interface I've made to a little portable multi-band radio.

Lastly and perhaps most importantly, I do a lot of work with musicians with this instrument. The CD that I put out— *100 of the World's Most Beautiful Melodies*—consists of duos with a large number of musicians, where I take a signal from their instruments, plug it into my system, and base my performance on capturing and transforming small amounts of their sounds. That turned out to be an unexpected benefit of this instrument, after doing pieces with processing sound that came from tape or the environment or radio, I discovered that it worked very well in a playing situation and I could start working with musicians in an improvisational setting almost as if I were playing a real instrument, just by capturing and transforming small amounts of their sound.

It is rather interesting, because the instrument goes in the direction of making multiple variations on a very small amount of source material. It tends to slow down musical development in an improvised setting where most players just like to jump in and run on ahead. It is difficult to run on ahead if something you did three minutes ago is still being beaten over your head by this guy who is on the opposite side of the stage from you. So it tends to lead to a somewhat more reflective form of improvisation, a bit different from what might happen under other circumstances.

GDB: I like the idea of using it almost as a therapeutic tool for incontinent improvisors, to help them listen to and think about what they are doing.

NC: I have to be a little careful what I say because these guys are all my friends. There is an old joke in improvised music: if you make a mistake, repeat it two or three times

Table de Séance
Installation Proposal

ATARI 1041ST

CD1

CUSTOM INTERFACE

CD2
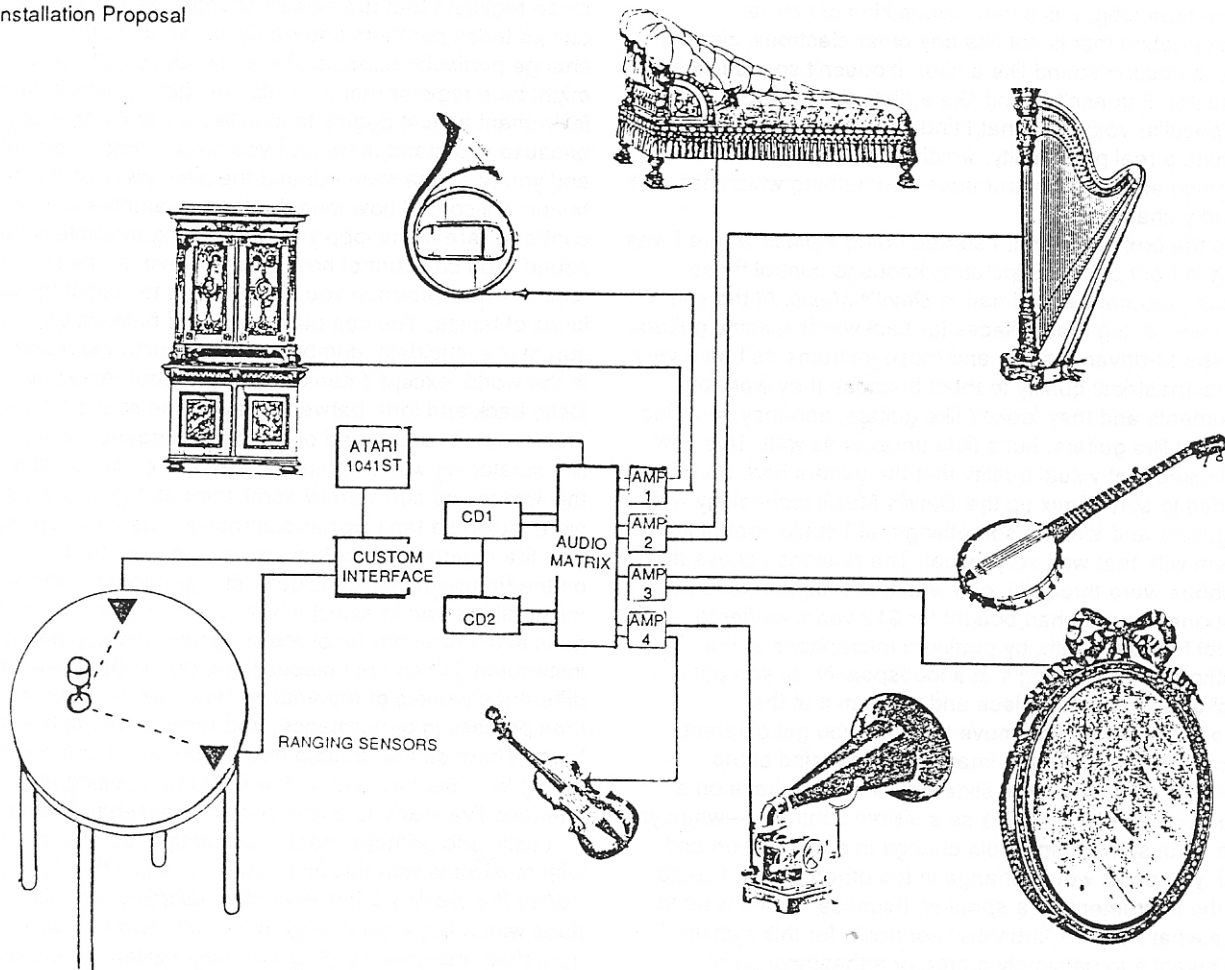
AUDIO MATRIX

AMP 1
AMP 2
AMP 3
AMP 4

RANGING SENSORS

Table de Séance is an audio installation based on the imagery of séances and spiritualism as represented in popular culture of the past 100 years. The focus of the installation is a circular parlour table bearing an inverted crystal wineglass. The table, positioned in the centre of a room, is surrounded by several matching chairs. Throughout the room are distributed several additional pieces of period furniture, household objects, and musical instruments, including a large radio, an old-fashioned gramophone, a harp, a French horn, a 'cello, a framed mirror, a sideboard, and a tea cart.

Concealed within the table top are two ultrasonic ranging circuits (similar to those used in auto-focus cameras) that detect the exact location of the wineglass as it is moved across the surface. These sensors are wired to a remote equipment rack containing a small computer, 2 CD players, a radio tuner, several small amplifiers, and some custom electronic circuitry. In each CD player is a specially prepared CD containing "sounds of spiritualism" such as dialogue and music from cinematic representations of séances (such as in The Uninvited), "haunted house" sound effects, readings from spiritualist texts, and fragments of Morse code and shortwave radio. The computer reads the position of the wineglass on the table as though it were a "mouse", and uses the coördinates to call up different tracks on the CDs and stations on the radio.

Hidden in each of the other objects in the room is a small loudspeaker or transducer. Using a MIDI-controlled audio multiplexer, the computer also selects which sound will be sent to which object, as determined by the position of the glass. The original sounds will be greatly transformed by the objects: rendered "ethereal" by the vibrating strings of the 'cello or harp, stifled by the sideboard, nasalized by the French horn or gramophone, and rattling the service on the tea cart or the mirror in its frame.

Thus the mechanism of the séance—the wineglass beneath fingertips, is used to call up sound from "the other side". These sounds are in turn filtered and resonated by the objects through which they travel, exaggerating the sense of the "intermediary". The installation is under the control of its visitors, who gather around the table to receive (or send) messages. It should be noted that the installation "works" (makes sounds) whether the glass is moved by the living or by the "so-called dead".

—Nicolas Collins, July 1989

The whole notion of control in culture is changing as a result of electronic technology. It used to be that a control did one thing—like you have a faucet and you turn the knob one way and the water comes out and you turn it the other way and the water turns off, and that's it.

and then it stops sounding like a mistake, which is kind of the essence of my playing style. Very often when I am playing with someone I'll catch the sounds they make when they're just testing the instrument, before they start to play. I'll do my first playing based on that, a click or a thump. There is perhaps a certain cruelty to it, because it's like eavesdropping, like bugging a telephone, you never know when this material is going to be used against you, but on the other hand they at least have the power of doing anything they want to do within the technical limits of their instruments, which tend to be much more free than mine. This is a very crude instrument compared to the original trombone. I've put it in a strait-jacket, one might say. I have this slight edge in terms of being able to taunt them, in a manner of speaking, with something that they may not have intended to have that much weight, musically. But on the other hand they can play circles around me, so that they have the advantage of more direct expression.

GDB: Would a smart improvisor be able to present sounds you wouldn't be able to do anything decent with? Are there kinds of sounds that are to you really uninteresting to work with, or can you basically make something out of anything?

NC: It is funny that you should mention that because I was thinking back to *Devil's Music*. The sounds that worked best in that piece were speech (processed speech is a great sound anyway), hip-hop and dance music—music with a lot of percussion and very staccato parts—and easy-listening music. What was terribly unsuccessful in *Devil's Music* was mainstream rock 'n' roll, "album-oriented rock". That material always came out exceedingly dull and unmusical when it was looped and processed and I never came up with a theory for why that should be. It is ironic that the most boring music of all, the easy listening music, turned out to be so beautiful when it was looped and processed. One whole side of the *Devil's Music* record was done with that, one whole side with dance music.

With this instrument it seems as though I can loop a much wider range of material and get something interesting. It usually has to do with what kind of processing works best for what kind of sound. If it is rhythmically active, all I need to do is make a loop and use this mode so that every time I reset the loop it resets to a different point. So you get all these different phrase lengths out of a basic two-second sample. Whereas if the sound is very dull and has no rhythmic activity it makes sense to do some timbral transformation to add a little excitement to it.

In terms of what musicians play, then, it doesn't really come down to the nature of the sound material as a kind of an abstract thing, but more a question of the musical context. When I work with a musician I'm no longer dealing with sound in quite the same abstract terms as when I have a disembodied source like radio: you say *OK that's radio, and there's a certain social function of the sound,* and you think *We're going to analyse the sounds of media, one moment it'll be pop music, one moment it will be talk, but that's what radio is about.* But when there is another musician on stage it's like *Oh, is this jazz? Is this rock 'n' roll? Are we going to hear contemporary classical music? Is this going to be minimal music?* In other words you begin to think of it in terms of genres. Certain musical genres are more interesting for me to work in than others. If I am with a

musician who simply wants to play, say, bebop riffs, and do a good job of playing bebop, I am not a good musician to have with him. We might be able to do two little interlocking lines for a moment but the trombone doesn't propel that musical form terribly well. Generally speaking, with players what makes more sense is to work on timbral ideas—I'll hold one kind of sound and they'll play something that's related or a little different against it—or rhythmic things, because the nature of this instrument is a loop, a stuttered loop. You can get very nice unpredictable rhythmic interaction. Certain tuning things are very interesting to experiment with, sort of post-Alvin Lucier beating pattern phenomena. On the CD I asked every musician to hold high notes while I would go slightly out of tune and we would get heterodyning effects. The digital circuitry is a little upset when you put very high frequencies into it. Sometimes it generates side-bands of its own, and in combination with going out of tune we'd get very lush timbres.

These are the kinds of things that seem more interesting musically. The success or failure of a performance is usually based on how adaptable the musicians are to focussing in on these particular aspects of playing rather than just going on the way they might with a normal player, and then looking at me wondering why I can't play better. I don't interact on all those levels.

GDB: Some of the most interesting aspects of the instrument are the timbral changes. At the very beginning of your concert yesterday, you had that buzz coming out of the instrument's speaker and just by moving the slide you could change the harmonic outline of the sound. It looked as if it were only an acoustic phenomenon caused by the motion of the slide rather than an electronic consequence of that motion. Also, your choice of the music to use was interesting. It was all music that had some kind of personality within its sound-colour.

NC: I maintain that one of the reasons why I do the kind of music I do, where I work with modifying real-world sounds rather than using synthesizers, is that I don't have a very clear idea of what kind of a sound I'd want to make if I used a synthesizer. I have no instinct for that. So I take a different approach. I am interested in that double character of sound, I'm not just interested in the pure quality as a timbre. What interests me is something like taking the Peruvian brass-band music and doing a piece for the trombone with it. By Western standards, the brass band is a very crude, sloppy form of music. But you start to listen to it and you realise that it is amazingly elaborate and it bears a strong resemblance to phase and pattern music. All the parts in it consist of loops: one musician is repeating a phrase that might be three beats long and another one is repeating one that would be five, and each one has a slightly different sense of where the downbeat is. And because these loops have different times, it is a little bit like the loops that stutter on this machine. These connections are not profound but they interest me. I think I have a terrifying fear of arbitrariness, of doing something without a reason. I always like to protect myself in this way. There is a reason to use a piece of music like that as a sound material; there is a reason to use the trombone, because I am able to combine the acoustic quality and the motion of the slide. [*Tobabo Fonio*, for solo performer with trombone-propelled electronics and a prepared source tape of Peruvian brass band music, appears on the MUSICWORKS 49 cassette.]

Back to your question though: In the beginning all of the timbral change that you hear when the slide moves back and forth is purely acoustic. The first time you hear any actual electronic change in it is when suddenly it drops an octave and I've made the loop a little bit longer. But I would be the first to admit that this instrument is extremely confusing to watch in performance. When I started I thought *Oh, it'll be very clear to everybody what's happening, because I move the slide and something changes.* Except that what you are used to when a player moves the slide is the same thing always happening. You move the slide down on a trombone, the pitch goes down; you move it up and the pitch goes up. There are some exceptions, but that's more in extended technique, not in standard technique. With this instrument, somebody looks at it and says, *Oh, I get it, when he moves the slide down then the pitch goes down,* and then the next time I move the slide down the loop gets longer or nothing happens, because I am just moving it to get to a new position. And I found that that's a great stumbling block for certain people in the audience. There's always been a thing in contemporary music, particularly in music with technology: people want to *understand* what they are seeing and a lot of composers, like me, have tried very hard to make pieces that are clear to an audience and it can't be done. It is sort of tragic but when you make a piece that finally is so clear that everybody in the audience understands what's happening usually it has become a very boring piece. It's a funny line you have to walk between giving the audience some sense of what is going on—not just hiding behind a computer monitor and typing away and having all these sounds coming out—but at the same time doing something that has a certain amount of realness to it. By realness I mean it is complex in a way that you cannot be expected to understand completely the first time you see it.

What I tell people, even though I don't like to think in terms of such mainstream technology, is that the whole notion of control in culture is changing as a result of electronic technology. It used to be that a control did one thing—like you have a faucet and you turn the knob one way and the water comes out and you turn it the other way and the water turns off, and that's it. Now, when you work with something like a computer and a mouse, you move the mouse around on the table to do different things. Depending on which of the little icons on the screen you've clicked it might be moving up and down the page of a document, it might be changing the shape of something—it can be assigned to anything. I am sure this is going to happen in hi-fi soon, that you're going to have one knob and you'll have buttons and you press one button and the knob will adjust loudness, you press another button and it will adjust the tone control. In fact you even have faucets that are like this, instead of having one for hot and one for cold, there is one in the middle and you push it over here and you go like this and it's cold and you push it over here and it's hot. That's sort of how the trombone is: you press one key and it's hot and the other and it's cold.

Musical instruments are classical things that you think are familiar. There is a resistance to accepting the idea that an instrument could change so radically, yet I think that this is

going to happen more and more often, that people are going to design instruments both for mainstream music and for avant-garde music, where controls will vary and a particular gesture won't always be reflected in the same kind of musical change. Commercial controllers like guitar-synthesizers and wind-synthesizers already do this to a certain extent.

GDB: As there is a reason to everything you do, then what is the reason for using material by The Shirelles and Roy Orbison?

NC: One is that I am interested in pop music. One of the touchy aspects of contemporary music has always been this distinction between high culture and low culture, and I know there are a lot of people who just cannot accept the role of populism and popular materials in so-called serious music. I think I was born the year that rock 'n' roll became an industry in terms of selling records to white people. And I am attracted to certain pop records and aspects of their sound production as being very beautifully crafted, just as some other kind of more "serious" work would be.

The pieces that I've chosen to do with the trombone intersect with the instrument in a particular way. One is the

Under the Sun III (A Post-Industrial Pythagorean Experiment)
Installation Proposal
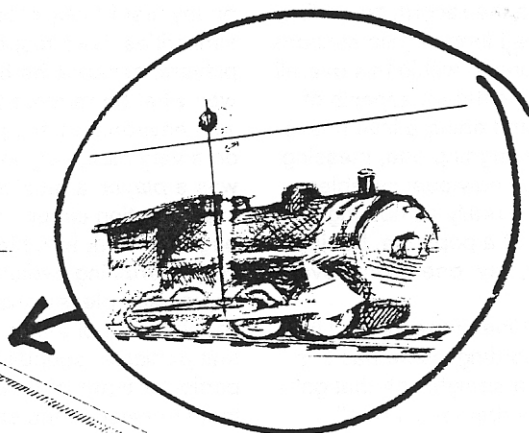
Pythagoras
used his finger to
demonstrate harmonic
relationships by careful
geometric divisions of a
vibrating string. *Under the Sun III*
employs a toy train to perform a
similar experiment in a less analytical way.

A steel wire is stretched across the floor (or along a wall) for a distance of 10-50 feet. "HO" train track is laid out beneath the wire. A locomotive runs along the track. The cam-like action of the wheel linkage is coupled to a vertical shaft, weighed at the tip with a small fishing sinker. As the train lumbers down the track, the sinker moves up and down, wobbles from side to side, and bashes the steel wire in a semi-predictable, semi-erratic fashion. The vibrations of the wire are picked up by contact microphones at each end, and heard over stereo speakers.

The fundamental pitch of the long wire is rather low, but as the locomotive moves along the track, it picks out the full range of overtones. The train performs a loose "Pythagorean Experiment" that can sound like bizarre *pizzicatos,* gongs, brake drums, or Rhys Chatham's guitar.

When the locomotive reaches either end of the track, it bumps into a switch that reverses the voltage, sending the train back and forth along the rails endlessly, without human intervention.

In reiteration
of its Pythagorean
roots, the piece is
usually installed diagonally
across the floor, as a hypotenuse
fully bisecting the rectangular form
of a typical room.

—Nicolas Collins

song "Baby it's You", sung by the Shirelles. I found a record of theirs, a mono recording re-issued as stereo. What they did in the early '60s when they released a lot of material this way, is they took the original multitrack recordings, which in that case was either two- or three-track recording and to make stereo they simply put some tracks in one speaker and some in the other. In this particular song they put the vocal in one channel and they put all the instruments in the other. It meant that by turning my balance control on my stereo from one side to the other, I could sort of remix it. And the vocal is stunning in isolation; it is an incredible vocal performance. It strains, it has this wonderful acoustic reverb chamber around it—they just used to put a speaker and a mike in a big room—and it is very poignant. I made an edit of the piece where I actually extended the record, by adding some extra measures. In performance I loop certain sections of it and hold them against others, working within this overall context of a pop song, but highlighting different aspects of the sound: taking a rhythmic phrase and doing a little phase thing of one that is frozen against the ongoing one, messing around with the vocal so that you hear individual syllables come out and stuff like that. I think of it really as nothing more than a remix or a cover version of a pop tune, but just done in a slightly different way than if, say, one might cover it with a band or remix it in a studio.

The second is a Roy Orbison cut. One of the things I like about a lot of the old Roy Orbison recordings is he has this amazing tendency to build— it is just a straight line that goes up, and it is very obvious, but it is very dramatic, like all those bolero pieces and stuff like that. One of the techniques that I find myself constantly coming back to is the idea that you reveal very small amounts of information at the beginning of a piece and you gradually make things clearer as the piece goes on. I found a program in this machine, that I hadn't really worked with much before, that was very beautiful for smearing out little blips of sound. You could kind of follow the overall form of the tune in a gradual build-up to a reverberant mass, without actually hearing the whole song, just isolated little bits of the timbre of the voice or the instruments. Again, I was thinking of it as a cover, another interpretation of it. These are love songs to pop songs.

GDB: Basically you work with materials that you like personally. Do you also work with stuff you don't like?

NC: I have often thought that I don't have a real strong taste about what I like and what I don't like in terms of sound *per se.* But I don't like the drum machine, even though I've done a piece where I mapped the pitches to drum sounds, so that different pitches of the voice bring out these different sounds, and they articulate the rhythm and the contour of the loop. By stuttering the loop you trigger the different drum sounds at different times. I like the way that they build up over the course of the piece and obscure the voice by the end with all the crashing cymbals. This piece is still a little bit problematic as a solo, because I have been working with Peter Cusack, and this piece was developed primarily for use with him. He does the pitch-following, he'll play melodic lines on the guitar that he picks out of the contour of the voice, and that adds a whole other dimension to the piece— it is much less analytical and formal.

GDB: You work a lot with Peter Cusack who, although he has roots in the English improvisation scene of the '70s, has always delivered very different highly personal music. How did that collaboration start and did it change anything in the way you have been working?

NC: He came to a performance I did for a STEIM symposium in Amsterdam several years ago. He was interested in what I was doing because I was working with a system to mix sounds automatically, cutting sounds in and out according to their rhythmic coincidences. It was similar to a system that he had designed at STEIM years earlier (and was still using) called the 'gate crasher', which was an automated system of triggering gates of sounds on and off in response to rhythms in those sounds or things he'd play. He worked with environmental tapes a lot. He had heard "Is She/He Really Going Out With Him/Her/Them", which was on my first Lovely record, and he had noticed certain similarities. He's responsible for my starting to work with players, because he had one foot in each of two camps: one was what he referred to as "electroacoustic music"—working with environmental tapes and electronics and things like that on a very nice, very low-tech level; and on the other hand he was a *player,* a musician, he made 'notes' and worked in the improvisation circuit. It was at his encouragement that I began to work with him and with other musicians. It's been a very interesting evolution, because we started with purely improvised pieces and then came up with certain vocabularies of things that work well together. He learned that particular sounds on his guitar would always do particular types of things with my instrument. It was with him that I developed the short duo forms that were the underpinnings of the whole *100 Melodies* project. Most of the duos on the CD are in the thirty-to-ninety second range. We started to compose structures for working with our vocabulary of instruments: the trombone, the auto-accompaniment that I had with the pitch-follower, his guitar and bouzouki and his gate-crasher system with tapes.

I must say that I prefer doing duo performances to solo performances at this point, especially with Peter, because we do a wide variety of material, and I find that the musical dynamics of ensemble are much more interesting than the musical dynamics of solo. There is something very gripping about a good solo piece, but a whole night of solo pieces is usually either boring or fatiguing, depending on whether they're bad performances or exciting performances. Doing a night of ensemble music, even though it's just duos, tends to break up that character and give you more of that sense of musical interaction.

GDB: I noticed there's a copyright on your CD, though you are mainly using materials other people have made. Would you mind if, for instance, somebody else started fooling around with samples from your CD?

NC: Well *I* do it. In fact I'm trying to come to grips with how to use the CD as a performance tool, reprocessing these duos, and I did a little of that last night. There's one thing on there that is specifically copyrighted by Peter, because it is an actual tune that he wrote. I suppose that in reality the copyright on this CD should be shared for every cut. But the way this CD came about was that with fifteen of these musicians I sat down, in most cases in my studio in New York, and just recorded half an hour or so of duos on multitrack tape, I mixed the best down and assembled them into a sequence, which was difficult—forty-two cuts, it's

difficult to conceive a form for it. But in the end I came up with a very definite shape. If you listen to the whole thing through one or two times there's a very apparent structural demarcation that takes place over the whole piece. I worked hard on that, so that is what I stuck the copyright on for. Even though at the same time it is wonderful to put the CD on a "random play" mode, because it is quite unexpected, like playing roulette.

As far as other people using the material, I'd be very curious to see what happens. I have often thought it would be appropriate if someone else pirated *Devil's Music* since it is a pirated piece to begin with. I'd always hoped it would be a dance floor record, that somebody would use five or ten seconds of the hip hop side as rhythm breaks, as an intro or outro. That record is now four or five years old, and I discovered that, in response to a radio show that somebody did on my music in Berlin, that some acid-house DJs in Berlin have started using it in clubs. This is terrific, this is a real vindication. As far as somebody going and taking this CD and putting it into their sampler and then using it to produce another record, I'd be curious, I'd like to hear it. In that case I worry more about the other musicians who played on the record than me. You know, John Zorn is a musician in demand and he worked on this project out of the goodness of his heart. I think he might be a little irritated if the next Toto record had his horn riffs in it.

I think it would depend on the use. People will say, *Oh well, you use all this material,* but again I feel that when I steal something for sampling I'm usually very conscious of the context of the original piece. I don't try to pretend that the Shirelles' piece is *my* music, I don't try to pretend that the Roy Orbison piece is *my* music, I always try to make apparent the source of the material. A lot of the sampling that takes place in the pop music industry is much more devious. You take a horn section because it sounds great and not necessarily because it is a particular group and you don't necessarily make it obvious that it's that group. When you steal James Brown shouting to do a rap song, obviously it is James Brown shouting and that's probably a little closer to what I am doing, except that again it often seems to be used as a punch or as a hit, without due credit being given. I think that's one reason why James Brown is suing everybody who does this.

GDB: After hearing the two 'song-covers' I thought it would be great if you could play audience requests as an encore.
NC: That's a nice idea. If I could come up with a generic technique for treating a pop song, which would be appropriate to the way I think. If I could come up with *OK, this little program on the reverb does a wonderful job on pop,* and I could do one song just as easily as another, that would be terrific. I'd travel with a CD of golden oldies. Unfortunately I haven't figured out a way; the processing I do to "Baby It's You" is very different from what I do to Roy Orbison. That is the way I usually work, matching things up. I'd have to see how much I could bite off in terms of different types of tunes.

SONOGRAPHY

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Nicolas Collins has given concerts of his music throughout North America and Europe, at venues ranging from the prestigious (Amsterdam's Concertgebouw) to the ridiculous (the Beethoven Music for the Millions Festival in Arnheim, where Collins achieved a succès du scandale by being the only performer to remain fully clothed). He has appeared as a solo artist, as a member of David Tudor's "Composers Inside Electronics", with his own ensembles and with many other musicians.

Guy De Bièvre (1961) is a composer living in Ghent, Belgium. A complete autodidact, he came to contemporary music through improvisation. Gradually, he became interested in composing methods and systems which use several types of chance operations. The musical material of his pieces is frequently borrowed from such diverse sources as Schubert, Hank Williams, Prince, and Milton Babbitt. Guy Klucevsek and Ann LaBerge are among performers who have recently commissioned works from him.

The MUSICWORKS 49 cassette contains *Tobabo Fonio,* which Nicolas Collins performs solo with trombone-propelled electronics and a prepared source tape of Peruvian brass band music. Order form on p. 72.