LMJ17 CD COMPANION

The Art of the Gremlin: Inventive Musicians, Curious Devices

curated by Sarah Washington
Leonardo Music Journal
CD Series Volume 17

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1. DAN WILSON: *PRINTAR (STUDY ONE)* [EDIT] (04:17)

Recorded and dubbed on 4-track cassette in a garage, September 2006.

2. NOTTHESAMECOLOR: *BIN_OP* (04:02)

Performed by Billy Roisz (TV, Hi8 cam, EQ Killer, audio and video mixing desk) and dieb13 (klopfer [self-built embedded computer with self-written audio software]). Recorded at Sperrmuecc Studios, Vienna, and mastered by Dieter Kovacic. Web site: <kluppe.klingt.org>.

3. ROTTED ORANGE: *BIRTHDAY BULL* (01:51)

Performed by Rotted Orange: César Dávila-Irizarry (circuit-bent transistor radio) and Jacob Christopher Hammes (laptop). Recorded in Chicago, IL, U.S.A., 21 November 2005. Published in 2006 by Cursor Records: <www.archive.org/details/cursor records>.

4. KUNST.RUCH.TER: *GRANDPA'S BROKEN HEARING AID* (04:51)

Recorded live in the studio of Radio Lemurie TAZ, 14 September 2006.

5. OWL PROJECT: *BUBO BUBO* (00:58)

Performed by Simon Blackmore and Antony Hall, using two Log1k prototype models.

6. NORBERT MÖSLANG: *SOLAR_GREETINGS* (05:02)

Performed by Norbert Möslang using two solar cells, four greeting-card chips and two flashlights. Recorded at bots studio, St. Gallen, Switzerland, September 2006. Stereo recording by Norbert Möslang.

7. MOSHI HONEN: *BIRDS DO IT* (04:24)

Performed and recorded by Moshi Honen on Hampstead Heath, North London, U.K., summer 2006.

8. GRACE AND DELETE: *SPLITTENS* (04:38)

Recorded at Passing Clouds, Dalston, East London, by James Dunn and Chris Cundy (Grace and Delete) onto DAT with two Shure Prologue electret condenser microphones, 23 August 2006.

9. HACO: *PENCIL ORGAN '04* (EXCERPT) (02:17)

Performed, recorded and edited by Haco. Recorded live for *Instrumentalize #2* at Kawasaki City Museum, 22 August 2004.

10. LEONARDO DI CRAPPIO: *AMERICA, TORTURE CAPITAL OF THE WORLD* (04:25)

Performed by Leonardo Di Crappio using various instruments, including The Old Hoptonian (adapted ring modulator), Species Derilictus (remote head tape and speaker combination), Bald Skweeker (badly constructed highly unstable state variable EQ) and The Ignoble Schmook (deliberately crappy, low-frequency generator). Captured using a mixture of microphones: Røde, Blue, SM 57 and one delightful specimen from the "everything for one Euro" shop (brand name: Mitochiba). Recorded to Protools mix system 24-bit 48khz, in London, 9 January 2007. Mixed by Knut Aufermann, January 2007.

11. FERRAN FAGES: *DESTENS* (04:54)

Performed by Ferran Fages. Recorded by Pablo Rega, Barcelona, September 2006. Mastered by Ferran Conangla, Laboratori de So de Metrònom, Barcelona, November 2006.

12. OSCILLATORIAL BINNAGE: *TAUT WIRES, LICE AND FLIES* (02:24)

Performed by Toby Clarkson (coils, cameras, cracklebox, video projector, modified personal alarms, broken computer), Chris Weaver (electric elastic-band zither, percussion, horn, "locomotive" cracklebox, laptop, paper) and Dan Wilson (touch contact boxes, blubbabox, modified shaver, chair, keys, laptop). Recorded at Tyrwhit Road, October 2005. Edited and mastered by Dan Wilson.

13. BØRRE MØLSTAD: *TUBAFEEDBACK* (01:31)

Performed by Børre Mølstad (tabletop tuba, homemade talkbox). Recorded by Børre Mølstad in his living room, 7 October 2006.

14. RHODRI DAVIES: *CAMBER* (09:59)

Performed by Rhodri Davies (harp, EBows). Recorded by Graham Halliwell, The Old School, Bracon Ash, Norfolk, January 2004. Edited by Ben Drew and John Wall. Mixed by Louisa Martin.

15. KNUT AUFERMANN AND TETSUO KOGAWA: *FM:I/O* (03:51)

Performed by Tetsuo Kogawa and Knut Aufermann (micro FM transmitters, radios, mixing desk). Recorded in Tokyo, Weymouth and Munich, 2006–2007. Track construction: Knut Aufermann, 2007.

16. TOSHIMARU NAKAMURA: *NIMB#41* (06:38)

Performed by Toshimaru Nakamura on no-input mixing board, Tokyo, 28 September 2006.

17. IVAN PALACKY: *IN THE KNITTING MOOD* (05:04)

Performed by Ivan Palacky (amplified Dopleta 160 knitting machine). Recorded Slatinka, Brno, Czech Republic, 19 September 2006. Mixed by Ivan Palacky.

PRODUCTION CREDITS
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The Art of the Gremlin: Inventive Musicians, Curious Devices

I am sure readers have noticed that I refer to the contributors to this CD as gremlins. That is due to their habit of meddling with machines, in this case for the purpose of the creation of unique sound-making devices. When I began to think about curating this compilation, it was clear that I did not want to limit the remit to a single arena such as that of circuit bending, which I happen to be involved in, or to some other more-or-less narrow definition of audio practice. Instead, I chose to present all manner of unholy instrument builders and also those who prey on a single quality of some fairly ordinary equipment in order to extract the most intricate possibilities from it. The one thing that unites the purpose of these musicians is the desire to find ways of creating and performing sounds that suit their personalities as players.

I focus here on those whose performances involve objects that help define their work, and not on those who primarily convert processes into sound, as interesting or closely related aesthetically as they may be (e.g. Michael Prime's audialization of the bioelectrical fields of plants or Jonathan Coleclough's contact-miked burning sparklers). In the case of Toshimaru Nakamura or Knut Aufermann and Tetsuo Kogawa, there is of course a large reliance on the harnessing of a process—audio feedback—in their work. However, it is the equipment that they use to manipulate this process that interests me: for one, the forensic exploration of a mixing desk and effects units; for the others, a wild game between radio transmitters and radios. The processes that we deal with here are rooted in the instruments themselves, which auto-define a particularity of sound. The players must struggle to suppress, produce and direct these willful sounds. For this project I sought representations of tangible objects that have an intimate connection to their users or creators. I am interested in the wrestling match between person (in this case simultaneously player and composer) and self-made or appropriated device.

The sounds in these recordings vary from crackles, scrapes, beeps and blips to fluid tones. There are encounters between these constructed noises and more familiar sounds—a bass clarinet in the duo of Grace and Delete, and a host of birds on Hampsted Heath that sing along to the bleeps of Moshi Honen. From the modified printer of Dan Wilson to the modified knitting machine of Ivan Palacky via all the chaos of dozens of distorted circuits; in the marriage of video signal and homemade computer in NotTheSameColor, the dance of tuba and talkbox of Børre Mølstad, and the clean resonances produced by Rhodri Davies, there seems to me to be some kind of coherence and unity. I did not intend that to be the case; in fact I was quite surprised as the pieces arrived and I absentmindedly listened through, not always sure where one track ended and the next began. I have followed this happenstance through while programming the CD, thus trying to offer an extra experience that flows from the individual contributions and varies in mood and contrast between pieces throughout.

I do not know if it is at all useful to speculate about the probable multilayered relationships between the works of these different artists. I certainly would not want any terminology to get in the way of appreciating the deeply inspired work that happens quite naturally when artists design their own tools to suit themselves so perfectly. In a fit of fancy about defining this particular field, I asked some musicians in Vienna to offer descriptions of their music. The best answer was from the audio and video feedback artist Billy Roisz. After some thought she described her area of work as "liminal," which she formulated as something "in between."

That description goes for everything to be heard on this CD—a riotous flower-bed of noises relating to transitions or inceptions of processes—sounds that remain anchored at or on both sides of a periphery or divide. As to whether that divide is between noise and music, or music and art, or whether this talk of transitions is an intuitive attempt to highlight the subtle areas of (co)operation between the producer, the production and the product (musician, self-designed instrument, sound), I leave the rumination to the listener. I will simply sit back and enjoy this result of a satisfying opportunity to compile a sound-world of choice.

I thank Nic Collins, who continues to inspire electronic instrument builders worldwide. I would like to dedicate this CD to Ed Baxter of the London Musicians' Collective and Resonance 104.4 FM in London for enabling a generation of experimental musicians to taste the work of others from across the globe and subsequently to explore their own vocations.

SARAH WASHINGTON
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Sarah Washington is an artist and coordinator working with sound and radio. Formerly a director of the London Musicians' Collective, she helped set up the radio station Resonance 104.4 FM. For performances, she creates handmade electronic instruments by circuit-bending toys and utilizes ultrasonic devices and radio technology. She plays concerts of improvised electronic music with various collaborators, including in her ongoing duo with Knut Aufermann, called Tonic Train. Additionally Sarah produces innovative radio works, writes articles on radio and experimental music and teaches workshops for cultural institutions across Europe. She was one of the instigators of Radia, the international art network of independent radio stations. The traveling radio and sound art project Mobile Radio. which she began in 2005, evolves and continues.

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The Art of the Gremlin: Inventive Musicians, Curious Devices Contributors' Notes

DAN WILSON: *PRINTAR (STUDY ONE)*

Recorded and dubbed on 4-track cassette in a garage, September 2006.

Contact: Dan Wilson, 11 Thornbera Gardens, Bishop's Stortford, Hertfordshire CM23 3NP, U.K. E-mail: <hellebore_shew@hotmail.com>.

Printar Study is the first in a series of studies on adapted dot-matrix printers. "Printar" is an amalgam of "printer guitar"; it can be strapped to the player and operated while one stands, and there are numerous taut springs inside simply crying out to be plucked. It is an attempt to reinstate that instinctive bond seen in instrument-instrumentalist relationships, which is sadly lacking in user interactions with nonmusical operational equipment. It could be said that in the industrialized world our proprioception is diverted away from playful musico-idiomatic actions and directed instead toward unilateral work-related procedures: Realization of emotion is substituted with realization of capital. Expressivity is frustratingly numbed on these new dummy instruments of work, yet they sing on with steadfast monotony, filling the offices with their harmonically rich voices. They have musical potential. In this study, the printar is played on the player's lap while he or she sits on a lovely, comfortable chair, to eradicate any phallocentric figurations that could recrudesce under the standing guitarist stance. The piece features two printar performances dubbed together so that the riffs collide and tangle together, strengthening the printar's voice. The bassy sound of the springs being plucked can be heard along with the occasional twist of the roller, making the stepper motor cough.

Essentially, the printar is the skeleton of a printer with a few amendments. Small single-pole pickups were placed near the springs to capture their resonance, the stepper motor was given a direct signal output and a piezo pickup array was affixed along the roller. Integrated faders govern the balance between these elements, akin to the balance controls on a guitar. Also, a squarewave step sequencer module was added. The tones output from the sequencer module are fed solely into the print head, through a switching board that directs the signal to any one of the reeds inside the print head (typically, eight tiny armatures are compacted inside a dot-matrix print head, each potentially offering eight independent channels of sound). These eight armatures form a cluster that punches outward when signals are fed into the channels. In the printar, the piezoelectric pickups attached to the roller are pummeled by the solenoid-like action of these reeds, and the player physically grabs and skims this chattering print head against the piezos to alter the tone. Another way to alter the tone is through the switching panel, enabling the player to choose between print head armatures. In this way the head can filter certain frequencies in different switching configurations.

The print head gets very hot, as the yellow sticker warns: "Warning, Warnung, Attention: Hot, Heiß, Chaud." This becomes painfully apparent when one physically presses the print head onto the piezo pickups. The device also runs on 12 volts (two bulky battery packs are worn in a backpack) and can pack a hefty shock if misused. Despite this, gloves were not worn—a close instrument-instrumentalist relationship was maintained. It can be a somewhat thorny device to work with, but all it needs is love.

In other studies, a pickup, three strings and tuning pegs were all attached to the printar skeleton. The string pickup signal was clipped and fed into the print head instead of the squarewave sequencer, thus bringing it closer to its instrumental namesake. In another study the stepper motor was given more prominence. However, the first printar study remained the most sonically intriguing, since the familiar operational voice of the dot matrix printer can still be recognized.

Dan Wilson is a U.K.-based instrument builder, observationalist, hardware hacker, failed writer and composer specializing in anti-tainment and mediadropping (the act of leaving homemade tapes or CDs in public places for people to find and to be jarred by). He is also known to operate under the monikers Meadow House and Ashfordaisyak when dropping media.

NOTTHESAMECOLOR: *BIN_OP*

Performed by Billy Roisz (TV, Hi8 camera, EQ Killer, audio and video mixing desk) and dieb13 (klopfer [self-built embedded computer with self-written audio software]). Recorded at Sperrmuecc Studios, Vienna, and mastered by Dieter Kovacic.

Contact: Billy Roisz and Dieter Kovacic, Sperrgasse 3/15, 1150 Vienna, Austria. E-mail: <ntsc@klingt.org>. Web site: <kluppe.klingt.org>.

The source material for the track *bin_op* was the video signal produced by an optical feedback loop between an old Hi8 camera and a TV monitor. However, we did not care for the optical output (mainly black-and-white flickering patterns) in a visually aesthetic way. We just wanted the image to produce good sounds: The video signal was sent to a video mixer (which can change, for example, the speed of the pattern movement and so also influence the sound), then to a strong audio equalizer/filter and finally to an audio mixing desk—that was Billy's part. From there the audio signal was fed to dieb13's self-built computer, named klopfer <kluppe.klingt.org/pictures.html>, where the sounds were processed by the Linux-based self-written audio software kluppe. *bin_op* is an edited mix of the resulting recordings.

Billy Roisz lives and works in Vienna/Austria and is currently working on video and sound experiments in the context of performance, installation and cinema. She specializes in feedback video and video/sound interaction using monitors, cameras, video mixing desks, a self-built video synth, computers and turntables for video and sound generating.

dieb13, a.k.a. Dieter Kovacic, dieb14, takeshi fumimoto, bot, echelon, dieter bohlen, etc., has since the late 1980s worked continuously in rendering cassette players, vinyl, CDs and hard disks into instruments. He makes music for theater, dance and video productions and for various installations. He is a conscientious copyright-objector and lives in Vienna Fünfhaus.

ROTTED ORANGE: *BIRTHDAY BULL*

Performed by Rotted Orange: César Dávila-Irizarry (circuit-bent transistor radio) and Jacob Christopher Hammes (laptop). Recorded in Chicago, IL, U.S.A., 21 November 2005. Published in 2006 by Cursor Records: <www.archive.org/details/cursorrecords>.

Contact: César Dávila-Irizarry, 1037 Jib Dr., Apt 208, Orlando, FL 32825, U.SA. E-mail: <cesar.davila.irizarry@gmail.com>.

From César Dávila-Irizarry: Playful, colorful, active and sharply sonically stated—that is the kind of delivery we found ourselves performing on the night of recording. While I used my circuit-bent transistor "compu-radio" (a small transistor radio within its miniature PC plastic shell on top of a videocassette case that serves as storage for its homemade extra circuitry), Chris would grab signal from my playing and manipulate it in real time to respond to my playing, which was based on interacting with his delivery. Just as with a conversation, the subject and tone changed progressively.

From my perspective, the way I react to Chris's playing is just as much inspired by folkloric Puerto Rican music (*bomba),* in which the main drum plays improvised solos with hits in between the hits from the other rhythmic drums, usually in a fast-paced manner, as it is by electroacoustic improvisation. This brings an element of surprise, which, in *bomba,* serves as interaction with a dancer who takes center stage; an element of surprise that I also find in the electroacoustic improv tradition. In this case my dancer is my colleague's delivery, which I take into consideration as both a sonic entity and, as I sometimes imagine, a visual presence triggering my reactions. That is why the use of photocells to control my compu-radio works well with my mindset during performance. The physical way I interact with my electroacoustic instrument is very similar to something I have been exposed to since I was born; it doesn't matter that the final sonic result is not exactly the same, though I should add that at the end of *Birthday Bull* I play click sounds in a way that is very similar to how drums announce the end of a *bomba* song.

After all recordings were selected and we had also worked on the album's art, we needed to come up with titles. Titles are something important for both of us. We both felt the same about how to title our work. It couldn't be sterile and scientific, like so many titles in any kind of music that revolves around "new" technology. It had to be something that would create its own identity for the piece but at the same time be very familiar to our everyday lives. So I went to Chris's apartment and, between the exhaustion of our day jobs and a couple of drinks, *Birthday Bull* made the most sense. It still does; I think it captures the energy of the performance.

From Jacob Christopher Hammes: When working with random moments, especially in an improvised context, I like to compare the process to sorting through someone else's garbage. One never knows what one is going to find, so it is necessary to create a way of separating the trash from what is valuable. For improvisation, I wade through the less interesting moments in the composition before arriving at the desired location. When things happen that are unexpected, I have to match it to my sensibilities as a listener before thinking about my abilities as a musician. I don't really have to think of myself as a musician at all as long as I know what it is I want to hear. Because I am using a laptop when César and I play, I want to think about my instrument as being narrower than it really is, restricting my playing to one or two elements instead of trying to fill the whole sonic range with unique sounds. In this way we can communicate more intuitively and think about the basic intersection of these smaller elements rather than how to move from one place to another. There is a push and pull that goes on when trying to steer the performance in a direction, which is sometimes a struggle that results in nothing interesting, but is usually a challenge that gets resolved through the collective intuition of the performers.

Rotted Orange is a collaboration between César Dávila-Irizarry and Jacob Christopher. They selected the best moments of their electro-acoustic improv recording sessions from fall-winter 2005–2006 for their first on-line release. The recording, titled the executive electric pony wasteland, demonstrates the communication they accomplish with their analog (Dávila-Irizarry) and digital (Christopher) instruments. The tools of choice are circuit-bent radios, no-input mixing board oscillation technique and laptop.

KUNST.RUCH.TER: *GRANDPA'S BROKEN HEARING AID*

Recorded live in the studio of Radio Lemurie TAZ, 14 September 2006.

Kunst.ruch.ter was established in 2004 by Pavel Sterec, a student of the Prague Academy of Fine Arts, and Stanley Povoda, the legendary Czech-American low-tech roboticist and constructor of electronic musical instruments. After gaining experience in the field of electronics and circuit bending, alongside others in the workshop of Sarah Washington and Knut Aufermann, Kunst.ruch.ter began to develop its own musical instruments and more people became involved, mostly students of art who did not specialize in music. At present Sterec is joined in the project by Jan Rous, a crossover artist active in the field of theater, art and music.

Kunst.ruch.ter aims to search not only for specific sound but also for means of reproduction. We experiment with the use of public loudspeakers, kinetic-sound installations and FM radio transmission. Kunst.ruch.ter will keep transforming until it becomes extinct. The main source of inspiration for the development of new instruments and installations are the pre-revolution issues of the Czech magazine *ABC,* for teenagers interested in technology and natural sciences.

All the instruments were made of components found at flea markets. The vanishing era of analog radio transmission and the network of public loudspeakers used in the streets during the years of the communist regime have become the platform for our sound creation. Our music is meant to become a pre-mortal cry of these information organisms.

OWL PROJECT: *BUBO BUBO*

Performed by Simon Blackmore and Antony Hall, using two Log1k prototype models.

Contact: Antony Hall/Owl Project, King's Arms Studio, King's Arm, 11 Bloom Street, Salford, M3 4AN, U.K. E-mail: <owl_project@yahoo.co.uk>. Web site: <www.owlproject.com>.

It all started with getting up at dawn and heading down to the local nature reserve. We needed two logs about the size of two laptops, and logs are not easy to find in the city. We found a felled tree and took the saw out of our bag and took it in turns to cut through the 30 cm of moist wood. Three cuts and probably 1 hour later we had two heavy logs, which we put in our rucksacks and lugged to the studio.

The idea was to make the two logs into our own custom music-making machines; we were excited about laptop music but bored by the interface of much music software. We wanted to make electronic music that used electricity, not millions of bytes of code.

After spending ages forming a log into something that resembled a laptop, we had to install a screen. At the time we were working in a large warehouse; there we ripped out some old fluorescent lights that fitted perfectly. This is the first sound that heard in the track. Having 250 volts AC running through the machine as the main sound-generating source added a certain edge to using the early Log1k. The sounds we manipulated by connecting the ground loops and smaller circuits joined by the resistance in our fingers and affected by the 50 Hz AC interference field from the light.

We obtained the rhythms by using a spinning wooden disk attached to a drill motor (which also created electrical interference), the shape and texture of which clicks switches on and off, resulting in a crude sequencing machine. We slowly developed these circuits into more complex sound generators, and *Bubo Bubo* is one of the first we made.

Formed in 1998, The Owl Project takes a heavily craft-based approach to designing their own interfaces and instruments, drawing on influences ranging from woodworking, hobby-style electronics and open-source software to make music-making machines. The result is a critique of human interaction with computer interfaces and an increasing appetite for new technologies. During 2005 they developed a work called Soundlathe, combining a traditional pole lathe with custom-built software, sensors and switches designed to generate electronic music. They have performed with their "Log1ks" in the U.K. and Europe, including SCALA, London; Garage04 Festival, Germany; Sonic Undergrowth, Cornerhouse, Manchester 2005; Festival Emergence, Paris 2005; Ultrasound05, Huddersfield 2005; WORM, Rotterdam 2005; Home fires, London. Futuresonic 2006 and as a headline act at Sonic Arts Network, Expo 2006. They are currently working on a new commission for Lovebytes, electronic art festival, Sheffield 2007. At present the core group consists of Simon Blackmore and Antony Hall and more recently, Steve Symons. All three artists have individual practices concerning art, science and technology.

NORBERT MÖSLANG: *SOLAR_GREETINGS*

Performed by Norbert Möslang using two solar cells, four greeting-card chips and two flashlights. Recorded at bots studio, St. Gallen, Switzerland, September 2006. Stereo recording by Norbert Möslang.

Contact: Norbert Möslang, Axensteinstrasse 25, CH-9000 St. Gallen, Switzerland. Email: <bots@swissonline.ch>.

Greeting-card chips usually just produce a well-known melody. Most people know this kind of card, which begins to play a melody when a card is opened and stops when the card is closed again. When the card is reopened, the melody starts again, and so forth.

If someone did this with the same card hundreds of times, maybe he or she would get lucky and the melody would begin to change; he might be able listen to sounds that would never be expected from such a soundchip. Most users will of course never arrive at this point; they will throw the card away before it begins to produce interesting sounds.

For the piece on this CD I tried to produce new sounds from sound chips, not their original melodies. First I connected two chips. As I wanted a variable voltage input I did not use a battery. Instead I used a solar cell. In order to have some control of the power input to the chips, I made the recording in the dark. Two identical systems were prepared, with each connected to one channel of the recorder. I laid the chips with the solar cells on a table, and in each hand I held a flashlight that made the solar cells work and the chips sound. By moving my hands I could "control" the sound of the chips. The final piece is an excerpt of a larger recording of this "instrument."

Digital and analogous errors produce sounds much more interesting than the original melody. This is an example of cracked everyday electronics, which I described in my article "How Does a Bicycle Light Sound?" published in *Leonardo Music Journal* **14** [1].

In addition to my work in the field of experimental music, I also work in the field of visual arts. In both fields I use digital and analogous errors to produce or change sounds and pictures that engineers usually try to avoid.

I believe it is very important indeed to understand that not only does the air transport information, but light waves, too. It all is dependent on waves of different frequencies. In any complex system, there are many possibilities for errors. In our everyday life we usually try to avoid them, and most times it is better that way. Such errors can, however, be very productive and direct our thinking into new directions.

In an installation I did in the Swiss mountains around Davos, I connected a computer with a thin film transistor (TFT) liquid crystal display (LCD) to various webcams on top of the surrounding mountains. My computer at home had access to the actual picture on it. One day, however, I used the wrong commands to download the picture. The result came as a surprise to me: the picture was not correct, but very good and in many ways much more interesting. It was in fact better than the original. From that moment on I started to get only "faulty" pictures, because they changed my point of view. Another approach is to manipulate the headers of data files, which allows me to obtain pictures from audio files and vice versa. That field, too, opens on many new acoustic and visual views.

Norbert Möslang was born in St. Gallen in 1952 and plays cracked everyday electronics. He worked with Voice Crack until the end of 2002 and was also a member of poire_z. He plays solo and has worked with Borbetomagus, Otomo Yoshihide, Günter Müller, erikm, Jérôme Noetinger, Lionel Marchetti, Jim O'Rourke, Kevin Drumm, Jason Kahn, Oren Ambarchi, Tomas Korber, Keith Rowe, I-sound, Carlos Zingaro, Florian Hecker, Toshimaru Nakamura, Keiichiro Shibuya, Maria Shibuya u.o. He also works in the field of visual arts. In 2006 he received the namics.kunst.preis for media arts.

Reference

1. Norbert Möslang, "How Does a Bicycle Light Sound?: Cracked Everyday Electronics," *Leonardo Music Journal* **14** (2004) p. 83.

Discography

Jason Kahn, Norbert Möslang, Günter Müller, Keiichiro Shibuya and Maria, *signal to noise vol. 1,* for4ears CD 1763 (2006).

Norbert Möslang, *burst_log,* for4ears CD 1761 (2006).

Norbert Möslang and Günter Müller, *wild_Suzuki,* for4ears CD 1760 (2006).

Keiichiro Shibuya, Norbert Möslang and Toshimaru Nakamura, *ATAK008,* ATAK008 (2006).

MOSHI HONEN: *BIRDS DO IT*

Performed and recorded by Moshi Honen on Hampstead Heath, North London, U.K., summer 2006.

Contact: Moshi Honen, Basement flat, 70A Brondesbury Villas, London NW6 6AD. E-mail: <moshih@gmail.com>.

I have been involved in many aspects of music-making activities for many years. My interest is constantly shifting and I'm not looking for an aesthetic consistency in any way.

To me, music-making is a paradoxical activity that exists in the tension between listening inside oneself and at the same time listening to the external world or to the other people involved. Once one is at this stage, one can abandon oneself, to really be in the moment and live this contradiction. Any recording of this process is limited by its inability to transmit the complete information in time and is only a material image or information that we have to complete each time we experience it with new meaning. To me this phenomenon is fascinating.

My instrument-making work is guided by curiosity regarding physical sound, music, technology and the question of what I can make that is outside accepted musical logic and meaning but that can still be applied in the context of making music.

My music-making in this case is concerned with both the physical material world (bird sound) and the internal process of listening to music. The dialogue (if possible) here has three sides—the birds, myself and whoever listens to the recording. I play an electronic instrument that cannot imitate the bird sound/language. I use it more to provoke and try to define a mutual space for all of us and activate the birds into action. My feeling is that they don't seem to care much and just get on with their normal business. I am happy with their lack of response as I believe our activities serve two different functions, but I can still listen to the process as music.

The instrument I am playing here is a modified personal alarm, a handheld, battery-powered piezo speaker, a little plastic box that is capable of producing some very loud sounds at its resonance peak. Using touch strips that contact 3 points in the circuit, I can vary the internal resistance between these points and play a variety of sounds, which is quite amazing for such a basic device. It is probably the simplest instrument I have ever built.

The recording is a section from a much longer piece made in Hampstead Heath in August 2006.

Born in Haifa, Israel, Moshi Honen has been living in London since 1986. He is a musician, guitarist, performer and instrument maker. He has been involved in many aspects of music-making activities for over 25 years. In addition to working on solo projects and compositions, he has also collaborated with other musicians and artists in the fields of improvisation, live performances, art exhibitions, dance performance, musical instrument-making and instrument design.

GRACE AND DELETE: *SPLITTENS*

Recorded at Passing Clouds, Dalston, East London, by James Dunn and Chris Cundy (Grace and Delete) onto DAT with two Shure Prologue electret condenser microphones, 23 August 2006.

Contact: James Dunn, 10b Elrington Road, London, E8 3BJ, U.K. E-mail: <james@4thharmonic.com>.

Within this duo we explore various aspects of electroacoustic free improvisation. The music is inhabited by an almost endless variety of sounds that are brought to the surface through an economy of playing and by keeping everything to a limited range of materials. The instrumentation includes defunct electronic equipment such as a tinnitus analyzer and a circuit-bent keyboard, as well as the classical formalism of a bass clarinet.

Starting with this setup as a departure point, we two instrumentalists overlap with one another, at once reinforcing and subverting the other while offering a mutual playing ground in which low tech meets high tech. The complementary harmonics of the bass clarinet merge with the mutated noises produced by the circuit-bent keyboard. The use of a redundant tinnitus analyzer, once used as medical equipment to detect and identify hidden or internal noises within the human ear, becomes a conduit for the transmission of these sounds, making audible the internal structures of systems and rewiring them into the physicality of the live performance.

The juxtaposition of these micro and macro environments is evident in the bass clarinet's amplification of concealed noises. In the midst of a highly charged climate of systems that are fast being broken down, externalized and made to appear more and more volatile by their exposure, the bass clarinet begins to adopt a unique dialogue of its own that reflects the conditions of the player in a very physical way. Extracted particles of sound from within the instrument's bore, and the internal sounds of the mouth and body, descend toward residues of the human voice. Slight breaths, the slapping of the tongue against the reed and the flicking opening and shutting of half-open keys provide absorbent textures that quickly become imbedded into increasingly obscured tonalities that rise and fall through the stem of the bass clarinet's awkward bulk. The instrument quite literally becomes an extension of the body, feeding into the path of electroacoustic exchange. The inside becomes the outside and, as the human agent confronts the veneer of the system, it seeks to devour it, to possess its very nature by infiltration.

The keyboard, the circuitry of which has been rewired, produces the sound of its mechanical self. The internal data and logic signals, which were originally designed to be invisible become audible, like the clunking keys of the bass clarinet. A dialogue ensues of corrupted logics, allowing elements that were once distinct to become blurred, and to form into homogenous blocks of sound, only to splinter off and reconstitute themselves elsewhere within the relentlessly changing bed of sonorous possibilities that are open to the spontaneity and exchange of raw materials. The endless movement to and fro, of Grace and Delete, is the product of this volatile environment, and forms a fecund platform from which we as a duo can approach the creative act of improvisation.

Within Grace and Delete, we naturally draw upon traditional dialogues inherent in our own playing, yet we allow the internal dynamics of the machine to interject and, at times, to outwit the mark of the individual. An environment is reinforced

that seeks to do away with traditional compositional or musical boundaries and their necessary function, where clear demarcations of beginnings and ends are ignored, laying bare a raw primacy of process.

Grace and Delete was formed in London/Cheltenham in 2001 as a duo of electronics and bass clarinet. Its debut album, Grace and Delete, released on Ochre Records in 2003, was recorded in the expansive acoustic space of the Pittville Pump Room in Cheltenham, and in the following year the duo toured the U.K. with Jazz Services funding. The tour included such venues as Manchester's Whitworth Art Gallery and the 291 Gallery in London, as well as venues in Sheffield, Cheltenham, Birmingham and Bristol, in appearances alongside musicians such as Mick Beck and Piney Gir. More recently, Grace and Delete have played to entirely different audiences at venues such as the Astoria and the Borderline in London in addition to regular London improv clubs.

HACO: *PENCIL ORGAN '04* (EXCERPT)

Performed, recorded and edited by Haco. Recorded live for *Instrumentalize* #2 at Kawasaki City Museum, 22 August 2004.

Contact: Haruko Mizoguchi, 6-14 Kawahigashi-cho, Nishinomiya, Hyogo, 662-0945, Japan. E-mail: <jesco@cvn.bai.ne.jp>.

Pencil Organ is an instrument created from a home electronics kit. By tracing two test leads (+/-) across a thick sheet of paper covered with pencil markings, sound is created. By controlling the two electrodes (+ and -) with one's hands a person can become part (the resistance) of an electronic circuit. The sound is amazingly varied, and the human body (or say, an apple) also produces sound when touched. Changing or slightly dislodging a couple of the parts (blocks) in the electronic circuit adds to the range of the instrument. The nerves in the human body also function via electricity, and although extremely weak, magnetic fields exist within the body.

Haco is a composer/vocalist/sound-artist. She is a founding member of After Dinner (1981–1991) and Hoahio. Haco has created numerous recordings both as a producer and engineer. As a musician, she has given performances at experimental art festivals throughout Japan and the world. In 2005, her electroacoustic CD Stereo Bugscope 00 *was awarded Honorary Mention in the digital music category at Prix Ars Electronica in Austria. With her unique sensibility, Haco has developed a practice based on principles of post-punk, electroacoustics, the avant-garde, improvisation, post-rock, environmental sound and technology.*

LEONARDO DI CRAPPIO: *AMERICA, TORTURE CAPITAL OF THE WORLD*

Performed by Leonardo Di Crappio using various Unstruments, including The Old Hoptonian (adapted ring modulator), Species Derilictus (remote head tape and speaker combination), Bald Skweeker (badly constructed highly unstable state variable EQ) and The Ignoble Schmook (deliberately crappy, low-frequency generator). Captured using a mixture of microphones: Røde, Blue, SM 57 and one delightful specimen from the "everything for one Euro" shop (brand name: Mitochiba). Recorded to Pro-tools mix system 24-bit 48khz, in London, 9 January 2007. Mixed by Knut Aufermann, January 2007.

Contact: Jim Whelton, 25 Camden Park Road, London NW1 9AX, U.K. E-mail: <unexploded@blueyonder.co.uk>.

About my relationship to noisemaking: The most loathsome thing about improvisation—a music that professes to invent itself from moment to moment—is its predictability. A narrow circle of sound choices hemmed in by an ever-narrowing range of possibilities. When I shut my eyes I can almost see this in picture form—the beleaguered wagon train of the racist myth of the Old West. The wagon train is peopled by improvising yahoos haplessly shrinking their perimeter as they crumble beneath another attack from murderous savages. The savages are you and I, emerging from our cocoons of ignorance.

Perhaps there was once a groat of truth in Improvisation's claim to be founded on those traditional American capitalist values—individualism, trail-blazing inventiveness, audacity. Even this arrogant practice has devolved into little more than a music of finessing. Yes, finessing. A music of stunningly pointless technique and zero cultural significance.

Seeking a way off this sinking hulk, I decided that the first things that needed dumping overboard were the musician's prized assets, close control (the neurosis of "good" technique) and defined goals. My solution was to develop my own family of devices—the Unstruments, named to differentiate them from those outdated control devices, Instruments.

Unstruments are basic feedback circuits that sometimes play themselves and are prone to interact unpredictably with human interventions. Some of my most delightful recent performances have occurred when the Unstruments, despite chirruping and squeaking merrily during the sound check, have refused to make a sound. Naturally, this confuses and frustrates the hell out of the audience, but if they feel bad, think about me standing up there like a half-boiled lemon desperately trying to coax a noise from the dead mass of circuitry.

About this piece: *America, Torture Capital of the World* is a blatantly representational piece but one that nevertheless is carefully designed to leave just enough room for the listener to plug in his or her own misinterpretations. My idea was to develop a work that, while showcasing all the great benefits that American language and culture have bestowed upon the world, also represented the screams of its countless victims.

For years Leonardo Di Crappio worked as an uninspired motivational salesperson. Then, in a moment of panic, he gave it all up to become an electronic musician. He eventually tracked down the device he needed to succeed in his new career. It lay covered in gleaming muck in a dusty shop window in Tooting Bec. That device was a complete model 2500 ARP synthesizer with only a few broken sliders. Unfortunately, the ARP cost more money than Leonardo will ever earn in his entire life. So, undiluted by disillusion, Leonardo set about building his own devices. He likes to call them his "Unstruments."

FERRAN FAGES: *DESTENS*

Performed by Ferran Fages. Recorded by Pablo Rega, Barcelona, September 2006. Mastered by Ferran Conangla, Laboratori de So de Metrònom, Barcelona, November 2006.

Contact: Ferran Fages, Progrès 25 1r. 2a., 08012 Barcelona, Spain. E-mail: <obsoletefarmer@yahoo.es>. Web sites: <www.cremaster.info>; <www.linnomable.com>.

My first approach to the turntable was in 2000. At that time I was still using vinyl, but also trying to escape from the vinyl itself, finding new possibilities by scratching the needle with different surfaces, but I never felt satisfied with the results. In 2001 I stopped using turntables and started playing a feedback mixing board and pickups in a regular project with Alfredo Costa Monteiro (cremaster). My intention with electronics was

to work with a direct, raw and physical approach to sound, avoiding effects, loops and pre-recorded material.

Around 2003 I started to play in another regular project with Alfredo Costa Monteiro (accordion) and Ruth Barberán (trumpet). I was playing feedback mixing board and pickups. This period was very significant for me, because my purpose with them was to play electronic stuff that sounded like an acoustic instrument. After spending months with this idea, by chance one day I held in my hands a children's telephone (two paper cups linked with a long string). I started to play with the different sounds I could produce with my fingers and then with a bow, and it came to my mind to use my turntable.

The turntable then became a circular bow as different resonating objects were rubbed against it. I started to explore the sound properties of different objects, like springs, strings, paper, balloons, wood, porexpan and combinations/interactions of all them. Without any doubt this approach to the turntable as an acoustic instrument was very related to the trio I was playing with, because they also use wood, paper, rubber and other materials for extended techniques or as extended sound sources from their traditional instruments. This encouraged me to find more complex sounds and extend the possibilities of the acoustic turntable. Actually, the relationship between the turntable and the object has changed. At the beginning the turntable was fixed on the table and the object was rubbed against it. Nowadays I also use a small turntable that I can move, and the objects are fixed on the table.

There are three recordings from this project: *Atolón* (Rossbin, 2004), *Istmo* (Creative Sources, 2005) and *Semisferi* (Esquilo, 2006).

In 2004, I started two new projects:

- a trio with Will Guthrie (percussion, amplified objects) and Jean-Philippe Gross (electronics), resulting in the live recording *Ferran Fages, Jean-Philippe Gross, Will Guthrie,* Antboy/Lmc Members (2006).
- *Fagus,* a duo with Pascal Battus (acoustic Walkman), resulting in the studio recording *Dans l'involucre entre ouvert* (A Question of Re-Entry, 2006.).

I am always thinking about the possibilities and limitations of each instrument in every musical situation. It is difficult to realize when a sound process is over. There is a close link in the relationship between my electronic work and my acoustic work, which I am also interested in exploring. When I am playing acoustic stuff I try to reproduce electronic sounds I have already produced, and vice versa. There is a connection between them that gives me the opportunity to develop my technique and explore my musical language. At the moment, I have not yet used both at the same time. The track I recorded for this compilation was made with one spring and some balloons.

Ferran Fages is a self-taught musician who plays guitar, acoustic turntable and electronics (feedback mixing board and pickups). He lives and works in Barcelona, Spain. Fages has been active in the improvisation scene since 1998. He was a member of the collective IBA from 1999 to 2006. In addition to his improvisation activity, Fages also writes compositions for guitar. In 1998 he stopped playing guitar to re-think the instrument and the music he made with it. In 2002, he started from zero: a process in which music allows harmony to circulate without being dependent on itself, where time is the reason for exposed materials, always as compositions, never closed, where space is enough for permanent changes, every time it is played. Fages is also active in poetry.

OSCILLATORIAL BINNAGE: *TAUT WIRES, LICE AND FLIES*

Performed by Toby Clarkson (coils, cameras, cracklebox, video projector, modified personal alarms, broken computer), Chris Weaver (electric elastic-band zither, percussion, horn, "locomotive" cracklebox, laptop, paper) and Dan Wilson (touch contact boxes, blubbabox, modified shaver, chair, keys, laptop). Recorded at Tyrwhit Road, October 2005. Edited and mastered by Dan Wilson.

Contact: Chris Weaver, 78 Empire Square South, Empire Square Borough, London, SE1 4NF, U.K. E-mail: <chris@resonancefm.com>.

Taut Wires, Lice and Flies is a freeform group improvisation piece that toys with a concept sometimes referred to as hyperinstrumentation, where the voices of instruments are harmonically emboldened by the layering of additional voices playing in unison. This effectively creates colorful new instruments whose voices appear to defy causal attribution—something that is most desirable in improvised music that seeks to establish some meaningful engagement with the listener.

Typically, hyperinstruments are created through signal processing and remapping procedures enabling the extrapolation and subsequent amalgamation of an artificial new voice that is harmonically dissimilar but maintains a likeness to the dynamics and form of the original. In this piece, however, attempts are made to create real-world acoustic hyperinstruments. Whereas in a melodic framework this is simply a case of playing the same thing in unison on separate instruments, in an improvisational, arrhythmic, nonmelodic scenario, it is altogether more challenging—especially when noninstruments are used, such as chairs, cameras and electric shavers. Coils were also implemented to stethoscopically amble through the inner sonics of electronic equipment. It is rather difficult to play a camera and a chair so that they simultaneously emit a sound that is perfectly identical in duration and dynamics and gesturally alike too.

Touch-contact instruments were the primary sound sources; these included modified personal alarms, destabilized circuitry and cracklebox-based devices. An electric elastic-band zither is another notably prominent instrument. Admittedly, then, the creation of tight acoustic hyperinstruments required some electronic intervention in the form of laptop processing: basically custom-built routines acting as dynamic envelope followers, echo/delay bufferings to smear sound where needed, along with the addition of some synthesis to solidify the absolute synchrony between the different, and somewhat incompatible, elements. As a result, the voices of elastic-band zithers, table-legs, cameras and shavers could be melded together in single flourishes. However, much of the synchronization was in fact achieved by physically signaling (it was performed on a round table) and through sonic signposting.

Formed in 2005, Oscillatorial Binnage is a London-based electroacoustic improvisation trio with a neo-primitivistic approach, composed of Toby Clarkson, Chris Weaver and Dan Wilson. They work with homemade instruments, video projection, biofeedback, just intonation, gestural interfaces and destabilized equipment responsive to touch.

BØRRE MØLSTAD: *TUBAFEEDBACK*

Performed by Børre Mølstad (tabletop tuba, homemade talkbox). Recorded by Børre Mølstad in his living room, 7 October 2006.

Contact: Børre Mølstad, Svestadbakken 58, 1458 Fjellstrand, Norway. E-mail: <nomusic.borre@gmail.com>.

Contrary to popular belief, the tuba is not an acoustic amplifier for pitches created by the tuba player's lips. The tuba works as a resonator for vibrating columns of air, and sound produced by oscillating frequencies from the lips resonate at the harmonics of a particular length of tubing. When one puts the tuba into a feedback chain, it behaves in much the same way. Vibrating columns of air resonate in the instrument, but instead of coming from the tuba player's mouth, the oscillating frequencies come from a speaker in a box. My idea for this track was to play with feedback using the tuba as a resonating body. My feedback chain consists of a microphone inside the bell of the tuba, an amplifier and a talkbox connected to the leadpipe of the tuba with a garden hose. A talkbox was needed in order to direct the sound back into the instrument. After some tests I found out that ordinary talkboxes blow up far too easily, so I decided to make a more durable and powerful one. The homemade talkbox is built upon the same principles as a normal talkbox, only bigger, and instead of a compression driver it is fitted with a 10-in full-tone speaker. I also drilled a hole in it where I connected a tuba-mouthpiece via another garden hose. This allows me to "buzz" or sing oscillating frequencies that modulate the sound, as can be heard at the beginning of the track. (When dealing with tuba feedback, it doesn't really matter where in the loop one puts the mouthpiece.)

Pressing a valve routes the vibrating air through additional tubing. This changes the reflection ratio in the instrument and makes it possible to manipulate the feedback only by engaging the valves—but there is always an element of surprise in how the feedback will react. Even if the range of sounds is somewhat limited, the unpredictability of it is what attracts me to play with a setup like this. The recording was made on eight channels, including line output from the amp, stereo close miking of the talkbox and the tuba, plus some expensive German microphones in the room. The signal was then mixed down, routed through a big bass cabinet and re-recorded with ambint microphones to add some more room and color (read distortion). The two recordings were then mixed together. No plug-ins, editing or computer trickery.

Børre Mølstad (b. 1978) is a Norwegian tuba player. He studied at the Royal Academy of Music in London, where he was a member of the London Improvisers Orchestra, among other groups, before moving back to Norway. Børre Mølstad mainly works within the field of improvised music—electronic and/or acoustic. He is generally interested in objects that can make a sound, and he likes building his own instruments or modifying his tuba. Apart from playing improvised music he also writes music and runs a small record label called NO!MUSIC! together with saxophonist Ole Jørgen Bardal.

RHODRI DAVIES: *CAMBER*

Performed by Rhodri Davies (harp, EBows). Recorded by Graham Halliwell, The Old School, Bracon Ash, Norfolk, January 2004. Edited by Ben Drew and John Wall. Mixed by Louisa Martin.

Contact: Rhodri Davies, 40 Stanley Road, Bounds Green, London N11 2LE, U.K. E-mail: <rhodrijd@yahoo.co.uk>. Web site: <www.rhodridavies.co.uk>.

As a performer, I have sought to fragment, disrupt and deconstruct the traditional harp sound. This has often involved the use of new performance techniques and various preparations on the instrument. One of the extended techniques I use is the Electronic Bow, or EBow. My piece *Camber* is composed of multilayered recordings, using one and two EBows to play metal guitar strings on my lever harp.

In researching sounds, I am interested in how I can sustain a harp note. In addition to using bows and fans, I find that the EBow works well in extending the duration of a note. In the past, my improvising vocabulary mainly consisted of emulating electronic sounds on my acoustic instrument, and the EBow harp sound fitted well in that context. More recently, I have been performing using two EBows to explore harmonics and the beating effect that is achieved by tuning two notes close together.

The EBow works best on a small lever harp. It is difficult to get it to activate the thicker and longer metal bass strings of the pedal harp, and when it does, the result is very quiet. The guitarist Ivar Grydeland showed me how to add a second battery to strengthen the signal. This works better on the strings of the pedal harp, although I can only use it for a short length of time before the device overheats.

In my composition *Perdereau—for one harp and eight hands,* recorded 16 March 2004 and released on the CD *London Strings* by Absinth Records, I explore the harp's decay and sustain. The 40 note chords at the beginning of the piece deal with decay, and the EBow section at the end explores sustain. On this CD, *Camber* deals with the latter half of *Perdereau* more fully and is a companion to a longer 40-min piece, scheduled for release as a CD on the Confront label.

When I started using the EBow I only knew of one composition for harp that used the device. John Cage's *Postcard from Heaven* (1982), for 1–20 harps, begins and ends with the harpists playing EBows on the harp strings. More recently, two composers have written pieces for me that incorporate the EBow: James Saunders's *# [unassigned]* and Laurence Crane's *Single Harmony for Rhodri Davies.*

In using the EBow on the harp, I have also changed the position in which I play the instrument. By placing the harp horizontally, I can set the EBows on the strings and still be free to use other preparations. This has opened up a whole new array of possibilities. I am currently on the lookout for someone who can build a large version of the EBow, one that will enable me to play multiple strings at the same time.

Rhodri Davies was born in 1971, in Aberystwyth, Wales. He has been based in London since 1995 and performs regularly in the U.S.A., Japan, Canada and Europe. Davies plays harp, electric harp and live electronics and is a musician who has long been fascinated by noise, improvisation, performance, phonography, composition, reductionism and sound art. His regular groups include Broken Consort, Common Objects, Cranc, Portable, The Sealed Knot, Apartment House, Q-02 and a trio with David Toop and Lee Patterson. He also performs and researches contemporary music and is part-time lecturer at Huddersfield University. He has commissioned new works for the harp by Antoine Beuger, Carole Finer, Catherine Kontz, John Lely, Michael Maierhof, Gorwel Owen, Tim Parkinson, Michael Parsons, James Saunders, Mieko Shiomi and Yasunao Tone.

KNUT AUFERMANN AND TETSUO KOGAWA: *FM:I/O*

Performed by Tetsuo Kogawa and Knut Aufermann (micro FM transmitters, radios, mixing desk). Recorded in Tokyo, Weymouth and Munich, 2006–2007. Track construction: Knut Aufermann, 2007.

Contact: Knut Aufermann, E-mail: <knut@klingt.org>. Web site: <knut.klingt.org>; Tetsuo Kogawa's web site: <anarchy.translocal.jp>.

From Knut Aufermann: Tetsuo Kogawa and I first met in Marseille in December 2005. A few months before, in Budapest, I had witnessed one of his lecture performances that he webcasts from Tokyo whenever he can't follow an invitation in person. He made some very poignant comments on the state of media art and proceeded to perform an improvised concert on an array of freshly soldered-up mini FM transmitters that reacted to the movement of his hands.

In Marseille the chance came up to perform an impromptu concert with Sarah Washington and Jacques Foschia in a small record shop called DATA. It was the start of a practice-based collaboration that saw Tetsuo inviting Sarah and me to stream live performances to Japan and New Zealand and also resulted in this joint piece for *LMJ*.

The idea for the piece *fm:i/o* was to only use radio feedback to produce the source sounds. Following different artistic developments, Tetsuo and I have both arrived at a point where mini FM transmitters overcome their intended use to be transformed into musical instruments. Maybe it will become a normal musical function for existing transmitters once analog transmission has gone out of fashion.

Tetsuo is one of the world's leading radio theorists and for decades now has built mini and micro FM transmitters, starting off the free radio movement in Japan. He has also developed a performance style that sees him place many of his transmitters on a table to influence their meshwork of FM oscillation by moving his hands in between them. The exact physical implications of this stunning visual performance are beyond my understanding of radio technology. I don't know any other electronic musician who can set up for a concert by emptying the contents of a plastic bag onto a table, a bag full of transmitters that only need a bit of separating out, and be ready to go.

My approach emerges from the use of feedback to produce music, and in 2001 I added radio feedback to my setup of wrongly wired-up mixing desk, effects units and microphones. The Velleman K1771 FM oscillator kit allowed me to transmit to a small transistor radio, which would feed its signal back to the transmitter and thus produce rich and unusual radio feedback sounds. It didn't take long to find out that the capacitance of my hand could change the frequency of the transmitter slightly when it came near its antenna, and therefore influenced the feedback loop. By now my transmitter collection has grown to include a couple of commercially available Belkin TuneCast2 transmitters and a treasured homemade "babyphone" miniature FM transmitter that clips onto a 9V battery and has a built-in microphone, made by an anonymous person in Prague.

fm:i/o was constructed from radio feedback sounds that were separately recorded by Tetsuo in Japan and myself in the U.K. After that I did a remix by passing it through a network of micro FM transmitters and radios with feedback possibilities and added the outcome to the original track composition.

Tetsuo Kogawa's interests range over a variety of disciplines and critical approaches. After studying philosophy at Sophia and Waseda universities, he taught at Wako University for 17 years. He is currently Professor of Communication Studies at Tokyo Keizai University's Department of Communications. Kogawa introduced free radio to Japan, and is widely known for his blend of criticism, performance and activism. He has written over 30 books on media culture, film, the city and urban space, and micro politics. Most recently he has combined the experimental and pirate aesthetics of the Mini-FM movement with on-line streamed media.

Knut Aufermann, born in 1972 in Hagen, Germany, studied chemistry, audio engineering and sonic arts (receiving an MA from Middlesex University). From 2002 to 2005 he was station manager of Resonance 104.4 FM in London. He is now active in Europe as a radio-maker, musician, organizer, curator and consultant. His engagements are in the field of radio art, improvised electronic music, research and network development.

TOSHIMARU NAKAMURA: *NIMB#41*

Performed by Toshimaru Nakamura on no-input mixing board, Tokyo, 28 September 2006.

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A good quiet day is offered. And there are musical equipments around me. But that doesn't necessarily mean that I start to work. Then here arrives an invitation to contribute a piece of music to a CD for *LMJ*. This is another push for me. But I am still glancing over a mixing desk, some effect pedals, unplugged cable. Why not? Why am I not getting up and start to play music like . . . like a musician? Hmmm. . . . OK, maybe not today. Then, a few days later, I might start to connect these cables between gears and make them work together. I would turn on power switches of them only to see all those red and green LEDs blinking fast and slow. Then I myself know I would finally start to touch them, on knobs for example, at some point. I would not hesitate too much to press a record button on a recorder. Then, I would listen back and say, well . . . not bad. I am not so excited to believe that this is all this is about. But this does seem to be it.

There are choices that are offered. I played and recorded the piece that I am now presenting here on the CD accompanying *LMJ*. The duration is about 10 minutes. But there could have been the same 10 minutes but not spent playing and recording this piece of music. If I indulged myself just sitting down on a couch and did nothing but looked up and down in my room with a beer glass in my hand, one could say the music would not have been here. But I am still doubtful about this. Because once I have connected all the cable between the gears, and I do things like twisting and touching any possible interface on them, some music would start to emerge in whatever shape. That gives me a feeling that music was already there regardless of what I have done.

There is music that is offered and not offered. There seems to be lost music. In any minute in which you do not play music, it looks like it is lost. But I do not think it is actually lost. It is just not offered to us.

So, here is the music that we are offered, or the music that I was offered and am now passing to you to share with you. Well, it is ready but you still need to put it on the tray of your CD player and press a play switch to start. . . . But you can do it with a beer glass in your hand.

No-input mixing board player Toshimaru Nakamura set aside his guitar around 1998 and began to concentrate on producing electronic music on the no-input mixing board, which he named himself. It describes the method of his music. "No" external sound source is connected to "inputs" of the "mixing board." The music on the no-input mixing board was first presented on the CD un *(1999, meme), a recording of his duo with Sachiko M's empty sampler, and his first solo disc,* no-input mixing board. *To date, Nakamura has recorded four solo releases on the instrument and one on the guitar. He also has numerous CD releases of collaborative works with other improvisers. Nakamura is mostly an improviser, occasionally a composer for dancers and an instrumentalist for compositions.*

IVAN PALACKY: *IN THE KNITTING MOOD*

Performed by Ivan Palacky (amplified Dopleta 160 knitting machine). Recorded Slatinka, Brno, Czech Republic, 19 September 2006. Mixed by Ivan Palacky.

Contact: Ivan Palacky, Slatinka 20, Brno 627 00, Czech Republic. E-mail: <manus@iol.cz>.

In my "civil" life I work as an architect. About 4 years ago, when I tried to penetrate 3D computer modeling, I realized that the operations with virtual objects I had been doing for hours and hours (the basic modeling is about doing operations such as "union," "subtract" and "intersect" again and again) and my perception of the manipulation with abstract sounds are very much alike.

The individual 3D images can be held at an intersection point and moved randomly along the linear axis or arranged in different distances in space. Compared to the operations of an improviser, who at a certain moment creates a sound object and places it carefully into the proceeding sound situation a moment after, the computer operations seem to be very similar.

From that moment I started to look for an instrument with which I could best develop the "3D approach" in the manipulation with sound. First I started to adapt instruments at hand, such as my acoustic guitar, to the point that it had nothing in common with its original function, reducing its usage to that of a resonator of various objects that were put on the body of the guitar. Since then, I have realized that *any* object can actually become a resonator.

From time to time I have remembered a weird machine that appeared on and off in the course of my childhood and had become an object of my avid yet unrealizable interest—a manual flatbed knitting machine, the Dopleta 160. In the 1970s, the Dopleta 160 represented the latest advance of modern technology, and it was really something when a Czechoslovakian household happened to acquire such a machine, contrary to the case some years later, with nearly every household having one. My aunt, who first made hats, then sweaters, would take her Dopleta out of a brown cardboard case with tender care and then she would mark out an imaginary circle around it, an area completely forbidden to my cousins and me.

A knitter would twice move a funny handle over an indented rail, forth and back, and a piece of a sweater would move onward and fall a bit over the edge.

With many needles and little springs, a knitting machine is a good resonator, offering various surfaces suitable for development of the spectrum of extended techniques from hums and noises, produced by a bow, through faint, indistinct tones up to percussive sequences.

The knitting machine I was able to obtain (the family's probably drifted away during the 1997 flood) was adapted in the following way: I cut it into halves to get a space-saving size, provided it with two contact mics and connected it to a mixing board. I was attracted by the possibility of developing my own musical language from scratch. At the beginning I simply tried to knit and to amplify and arrange the sounds produced by my knitting. But after some time I started to see this approach as too literal, always ending at a point similar to its beginning. I then realized that I had to change my point of view and see the machine as an undiscovered musical instrument-resonator, which meant forgetting its original purpose forever. Since then, the breviary of new sounds has started to grow, because I feel free to put new objects on the instrument as well as to adjust some parts of it while eliminating others.

After discovering a scale of sounds, I gradually started to distinguish sounds as "light" (hum), "heavy" (deep drones), "permeable" (percussive), "chainlike" (the sound of a needle row) and "isolated" (the sounds of applied objects), and I started to use them in the context of this subjective method of 3D sound, which means that I perceive sounds as individual volumes that can be interconnected, separated or intermingling. I put them on an imaginary axis of the concert at various intuitive intervals; I also place them around the axis, varying the spatial distances.

Depending on the acoustics and the quality of electrical wiring of the venue, as well as the instable nature of some units of the knitting machine, at some concerts nothing seems to work as it should, which makes me start from the beginning again and search for possible sounds determined by that unexpected situation. Both the machine and I are subjects of permanent testing of where our personal limits are set at a given moment.

Ivan Palacky is a musician and architect. In the 1980s and at the beginning of the 1990s, Palacky played with various groups and took part in several music projects. At the end of the 1990s he founded the guitar/double bass/bassoon group Slede, zive slede (Herring, live herring) and since 2003 he has performed in an audiovisual duo called Koberce, zaclony/Carpets, Curtains (with VJ Vera Lukasova). He "writes" a sound diary of his journeys—collecting excerpts of stories, weird sounds and various acoustic mistakes. He likes to take part in one-shot improvisational groups or duos (such as with Cremaster, Ruth Barberán and Margarida Garcia, Will Guthrie, Andrea Neumann, Klaus Filip and Steve Beresford), as well as playing solo performances. Since 2005 his main interest has been to dig out sounds from an amplified 1970s Dopleta 160 knitting machine.

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