

Robin Meier

Press Kit

11/07/15

Works



Robin Meier & Ali Momeni: *Truce : Strategies for Post-Apocalyptic Computation*, 2009
Mosquitoes, Cameras, Microphones, Speakers, Electronics, Computer, Audio interface, Cage, Freezer
DYNASTY Exhibition, Palais de Tokyo, Paris 2010
Curated by Marc-Olivier Wahler and Daria de Beauvais
Collection Laurent Dumas, Paris
Photo : Pierre Antoine

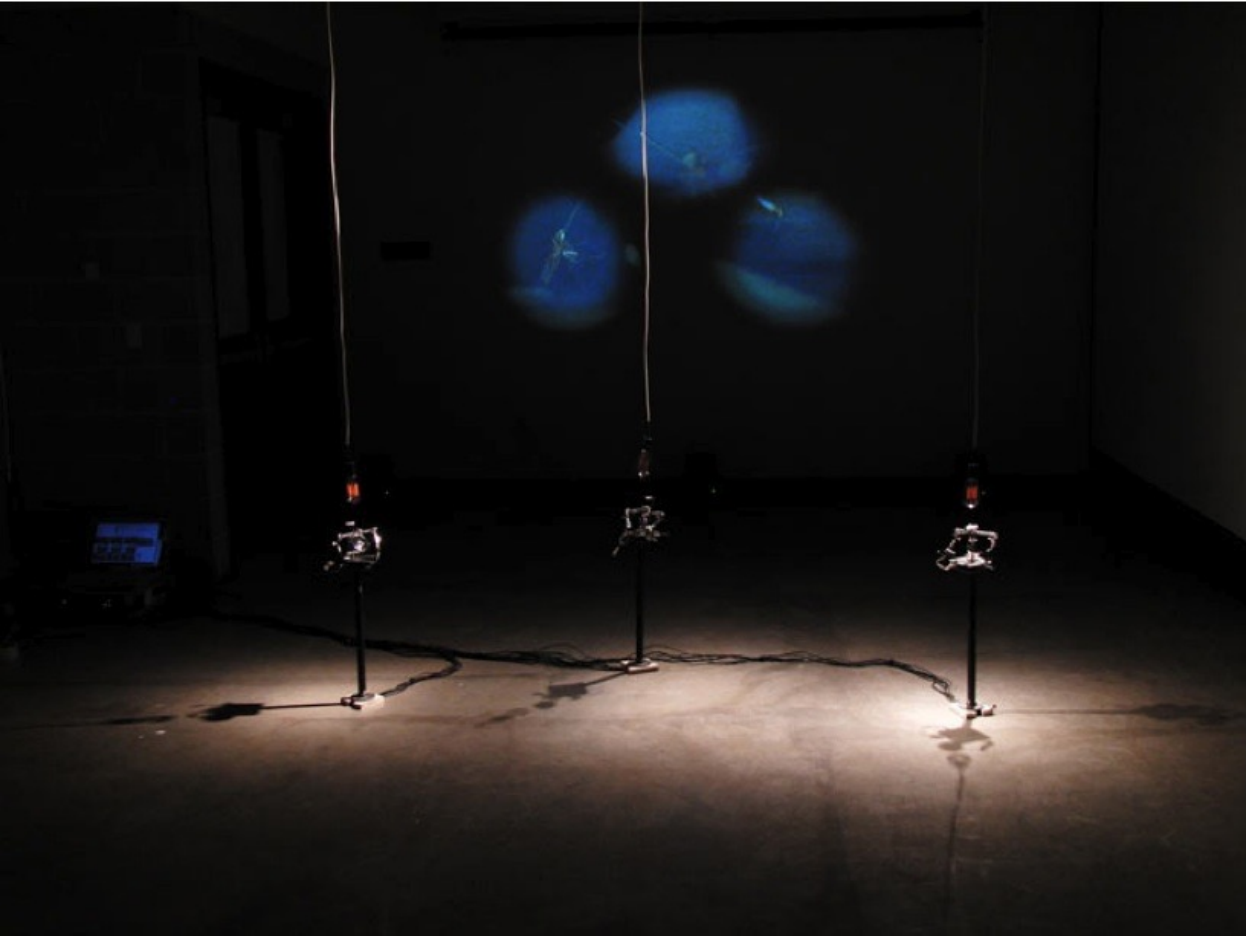
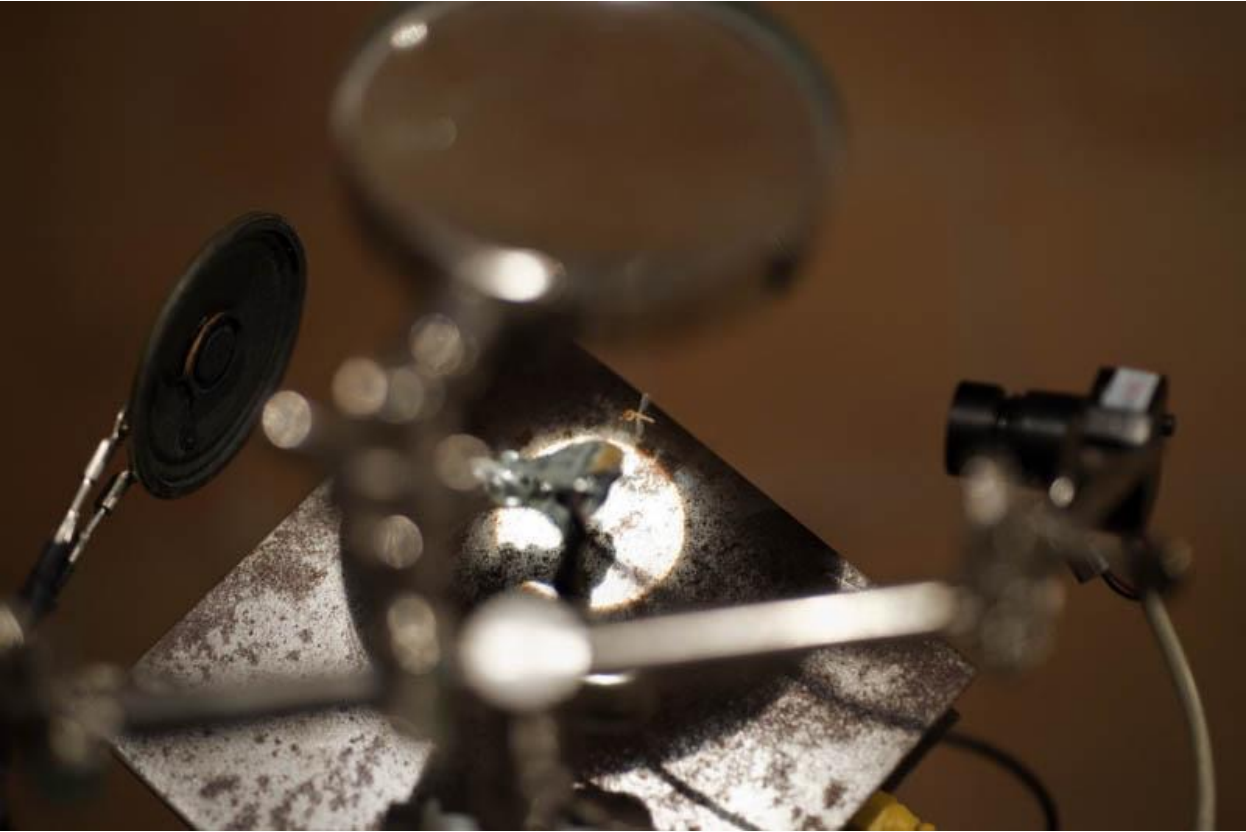
In their scientific publication "Flying in Tune: Sexual recognition in mosquitoes," University of Greenwich researchers Gabriella Gibson and Ian Russell note an inspiring phenomenon: To find a partner of the right species, male and female mosquitoes rely on their ability to "sing" in tune.

Mosquitoes vary the buzzing sounds they produce by changing the frequency of their wing beats in flight. This phenomenon synchronizes the male and female wing beats to within a millisecond or less, allowing a harmonized buzz and mid-flight copulation. *Truce* harnesses the mosquitoes' natural synchronization behavior to engage them in song with a computer generated classical Indian Dhrupad drone.

http://robinmeier.net/?page_id=38



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Mosquitoes, Cameras, Microphones, Speakers, Electronics, Computer, Audio interface, Cage, Freezer
DYNASTY Exhibition, Palais de Tokyo, Paris 2010
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Robin Meier & Ali Momeni: *Truce : Strategies for Post-Apocalyptic Computation, 2009*
Collection Laurent Dumas, Paris



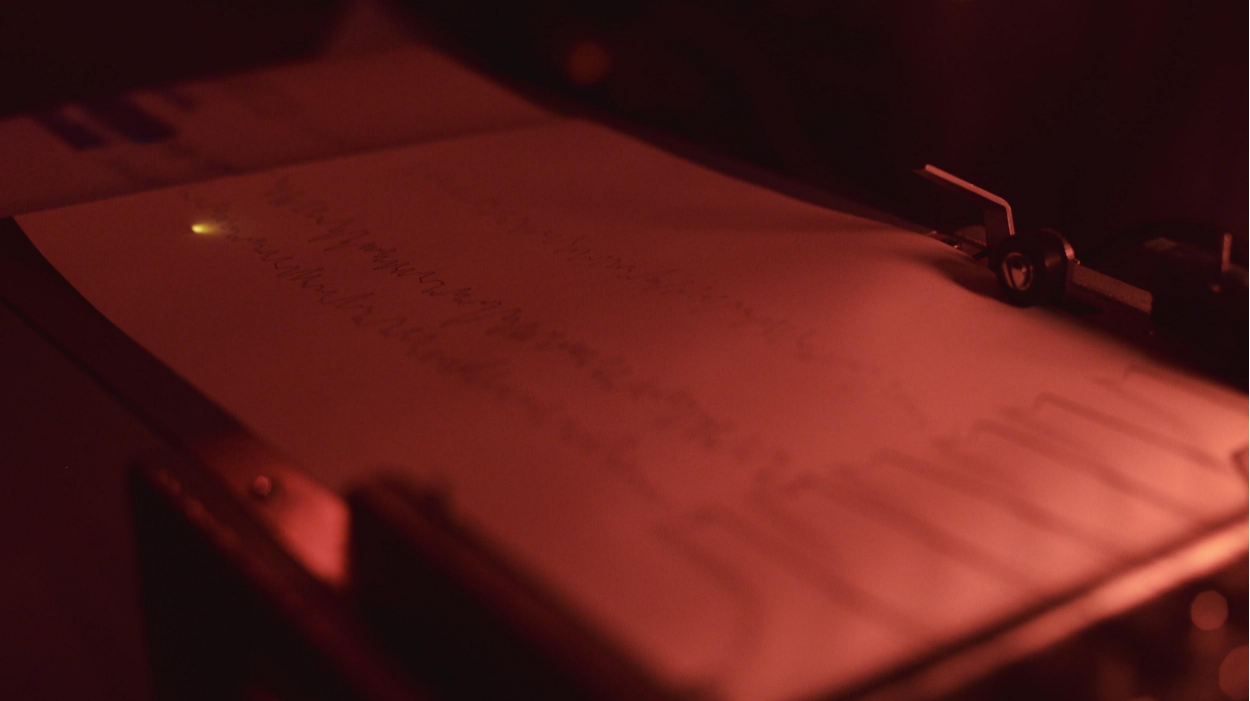
Robin Meier & Andre Gwerder: *Synchronicity, 2015*
Mixed media installation (mylar tent, fireflies, crickets, electronics)
Art Basel, Volkshaus Basel, Basel 2015
Curated by Marc-Olivier Wahler
Produced by Audemars Piguet, Le Brassus
Architect: Ivan Mata
Photo: Nikolai Zhaludovich

"Synchronicity" est une installation qui met en relation des métronomes, des criquets, des machines et des lucioles diffusant une lumière bioluminescente. Les sources de lumière clignotent selon un rythme donné par les battements sonores de métronomes disposés au sein de l'installation. Eux-mêmes synchronisent leurs oscillations grâce aux vibrations que chacun transmet par le sol. Ces battements de métronomes font échos à des sons émis par les nombreux ordinateurs installés dans l'espace. Enfin, des criquets strident en cadence, au rythme des métronomes et des pulsations lumineuses des lucioles. L'ensemble fonctionne comme un seul organisme, un orchestre autorégulé, générant ses propres structures, à mi-chemin entre la cybernétique et l'entomologie.

documentation in progress









Robin Meier & Andre Gwerder: *Synchronicity* (Video), 2015

4k digital video + sound. 43 minutes

Art Basel, Volkshaus Basel, Basel 2015

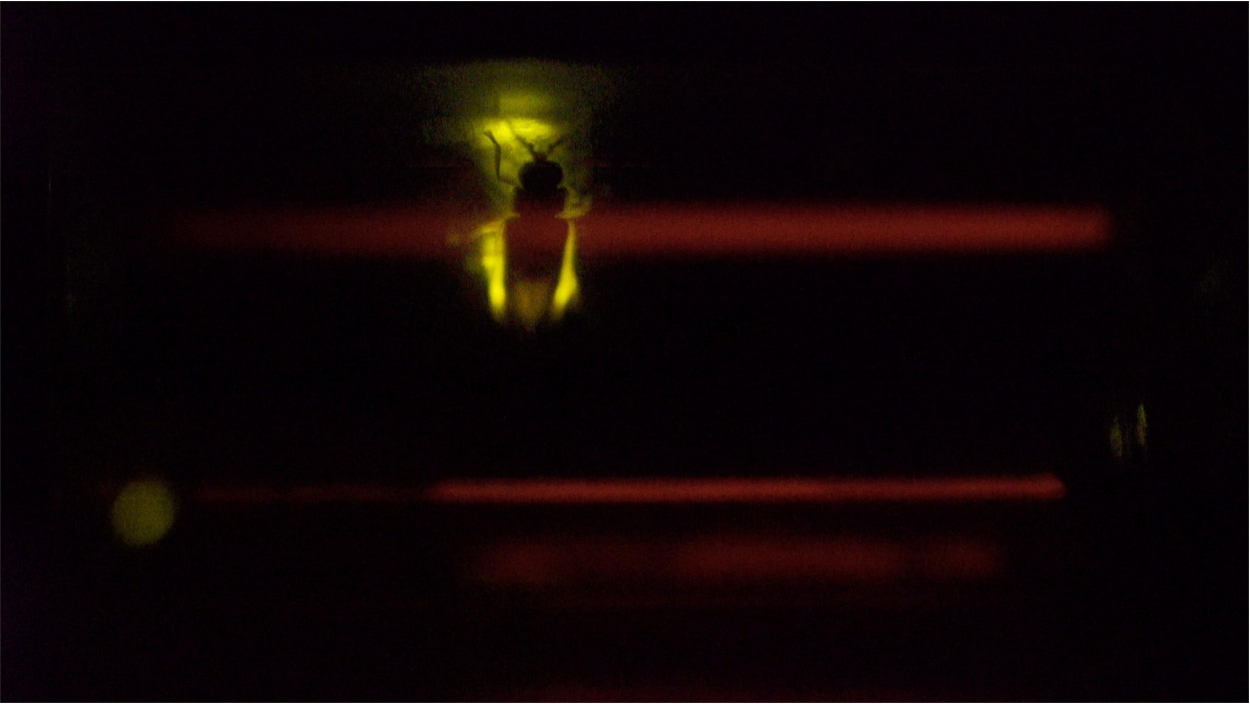
Produced by Audemars Piguet, Le Brassus

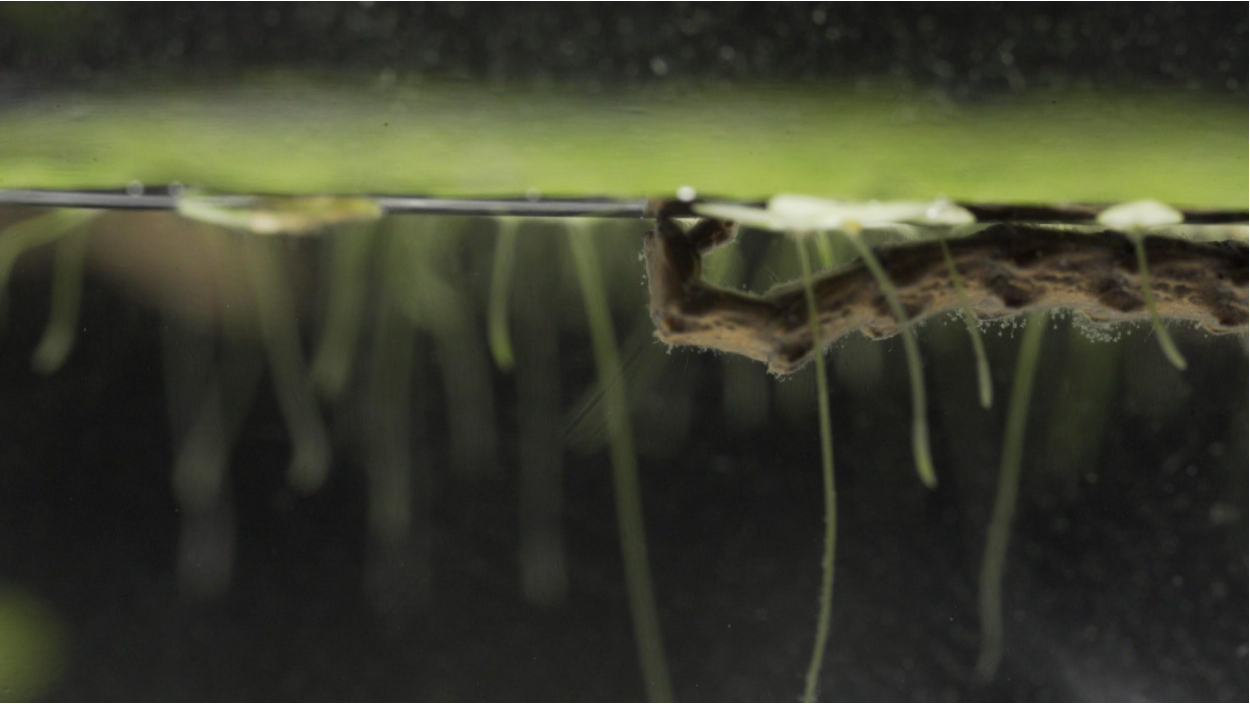
Director of Photography: Nikolai Zhaludovich

Editing: Mariko Montpetit

Video filmed in Thailand in collaboration with firefly researcher Anchana Thancharoen from Kasetsart University, Bangkok. The video documents a 2 week long experiment where live synchronizing fireflies (*Pteroptyx* spp.) are made to synchronize their flashing to a branch covered with LED's.

online documentation still in progress







Robin Meier: *Fossil Records*, 2015

Robin Meier, 2015 – Steel and copper audio record disk, 30cm diameter, 33rpm, 10 minutes 8 seconds

Galerie Laurent Muelle, Paris 2015

Curated by Marguerite Pilven

Produced by Laurent Mueller

Photo : Cyrille Robin

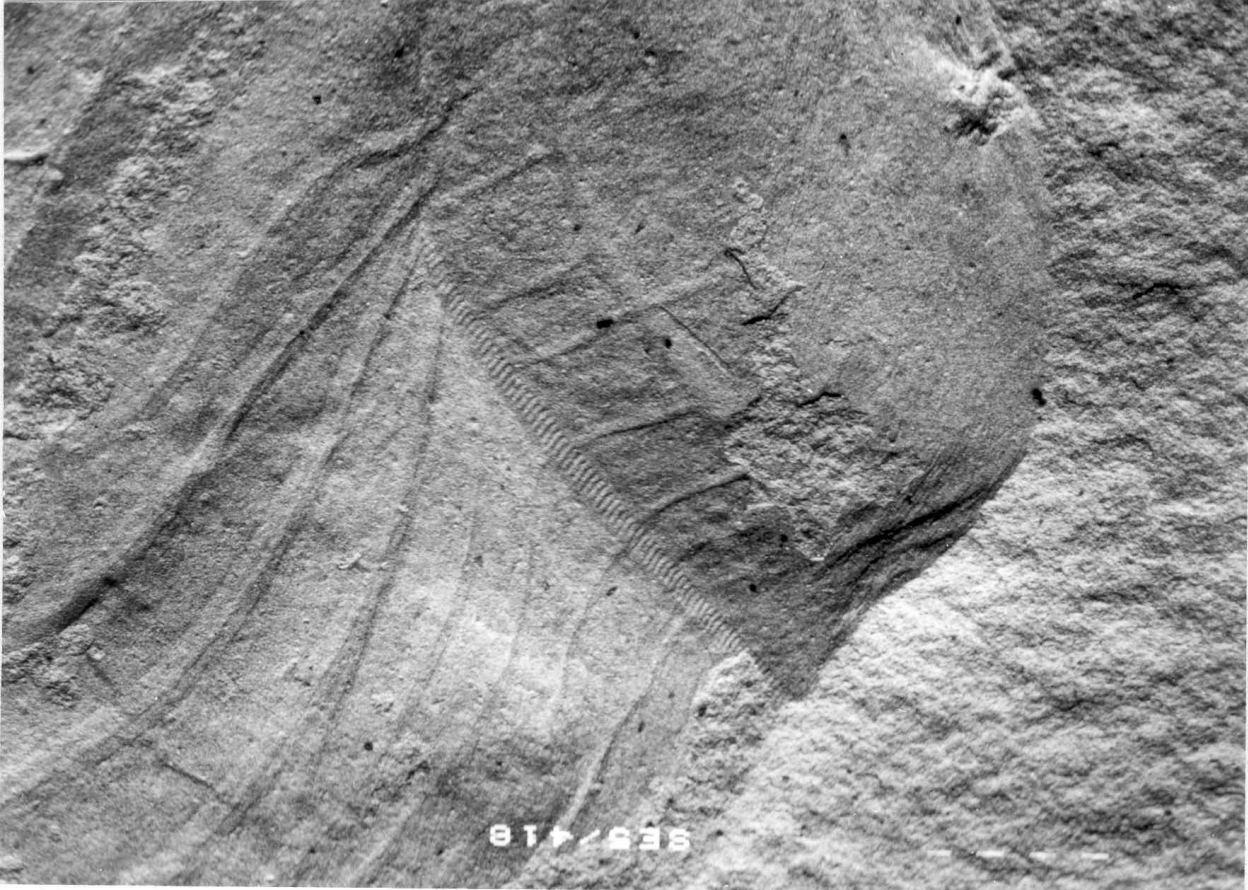
The Golden Record sent into space by NASA onboard Voyager II contains sounds from Earth which were chosen for their “universal” characteristics. Aimed at possible forms of extra-terrestrial life, it is above all an invitation to question our anthropocentric vision of the world by broadening the spectrum of our relationship to the Other and the unknown.

Using computer based physical modelling algorithms, Meier reconstructs the sound of a 250 year old insect by analyzing the physical structure of visible veins on the insect's fossilized wings.

“The first possibility for Voyager to pass by a potentially inhabited planet isn't before several million years from now – a time after which a substantial part of the sounds contained on the record will have disappeared from Earth, like the sounds of the insects that I have been recreating. This is like aliens finding the Golden Record. Besides, the method of sound production of these insects is called stridulation and in principle resembles what a record player sounds like when its grooves start making the needle vibrate. I like this double parallel and I want to implement it for the physical incarnation of this project”.

Text: Marguerite Pilven

<http://robinmeier.net/?p=2049>







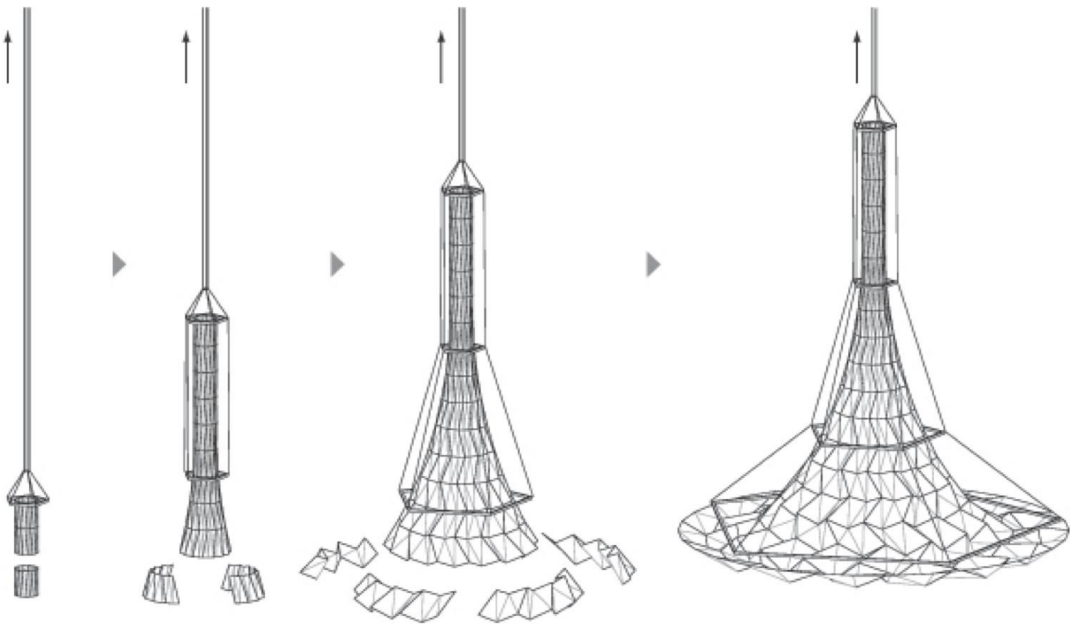
Robin Meier and Ali Momeni: *plis / replis*, 2011
Architect collaborator: Hyoung-Gul Kook
Exhibition “Expérience Pommery #9: La Fabrique Sonore”
Curated by Claire Staebler and Charles Carcopino
Produced by Vranken Pommery
Courtesy of the artists
Photo: Ali Momeni

The fold, as a multi-layered metaphor for the relationship between mind and matter, inspires *plis / replis*. The installation is made up of a highly geometric, folded and suspended structure that amplifies the experiences and metaphors of champagne. The primary structure, a ten by ten by twelve meter cone suspended in a pyramid, underground cave (a “crayères”) – one of the largest crayères of Vranken-Pommery’s eighteen kilometers long underground system of corridors and caves dating back to Roman times. This architectural augmentation of the space also serves as a functional loud speaker. A glass platform suspended at the focal point within the cone holds a vessel filled with champagne. Using the actual sounds of effervescence picked up by a special microphone immersed in the champagne vessel, a real-time analysis/synthesis audio system creates a continually evolving sound environment.

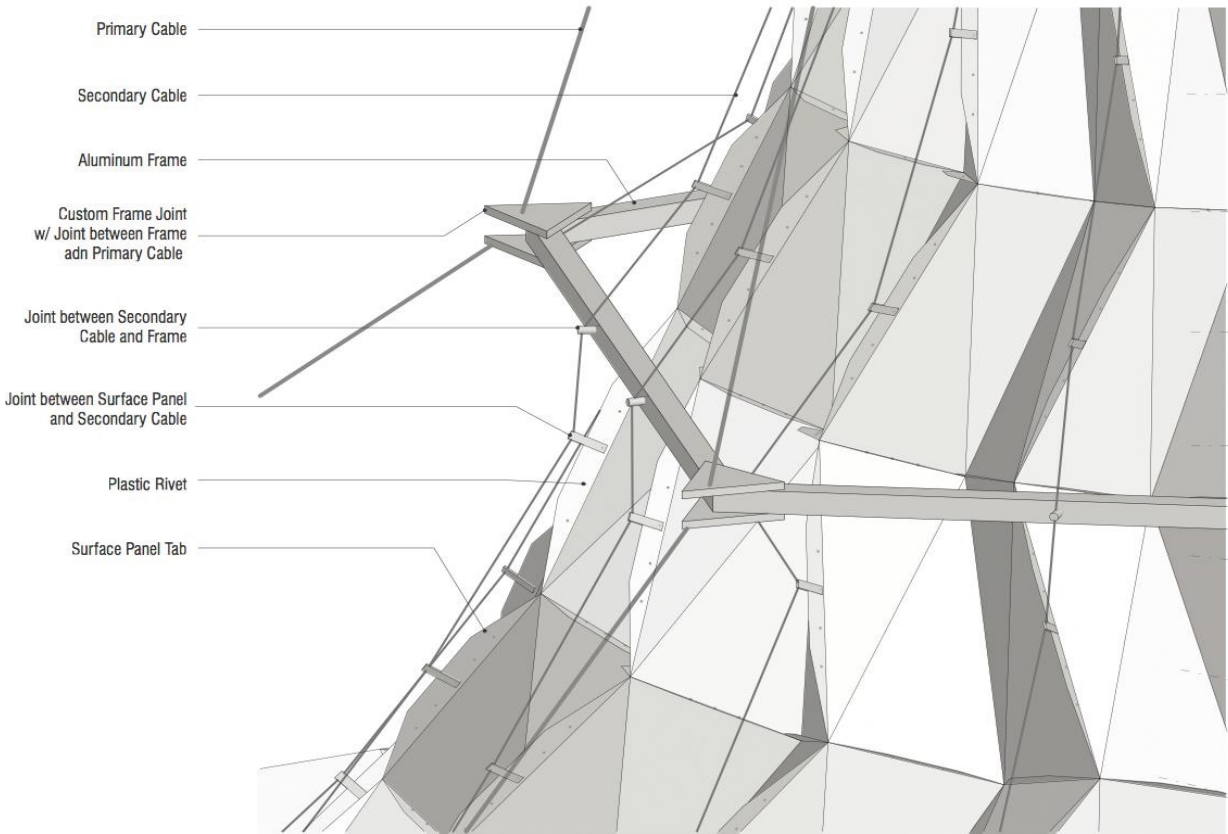
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Robin Meier & Ali Momeni: plis / replis, 2011
Courtesy of the artists
Photos: Robin Meier / Aurélie Cenno



DETAIL



Robin Meier & Ali Momeni: plis / replis, 2011
Drawings: Hyoung Gul Kook



Robin Meier and Ali Momeni: *The Tragedy of the Commons*, 2011

Installation with 60'000 Atta ants, cameras, microphones, computer, flowers, fragrances, projectors, speakers

Curated by Marc-Olivier Wahler and Marc Bembekoff

Produced by Palais de Tokyo and Pro Helvetia

Scientific collaborators: Nicolas Châline, Laboratoire d'Éthologie Expérimentale et Comparée, Paris

Courtesy of the artists

Photo: Robin Meier

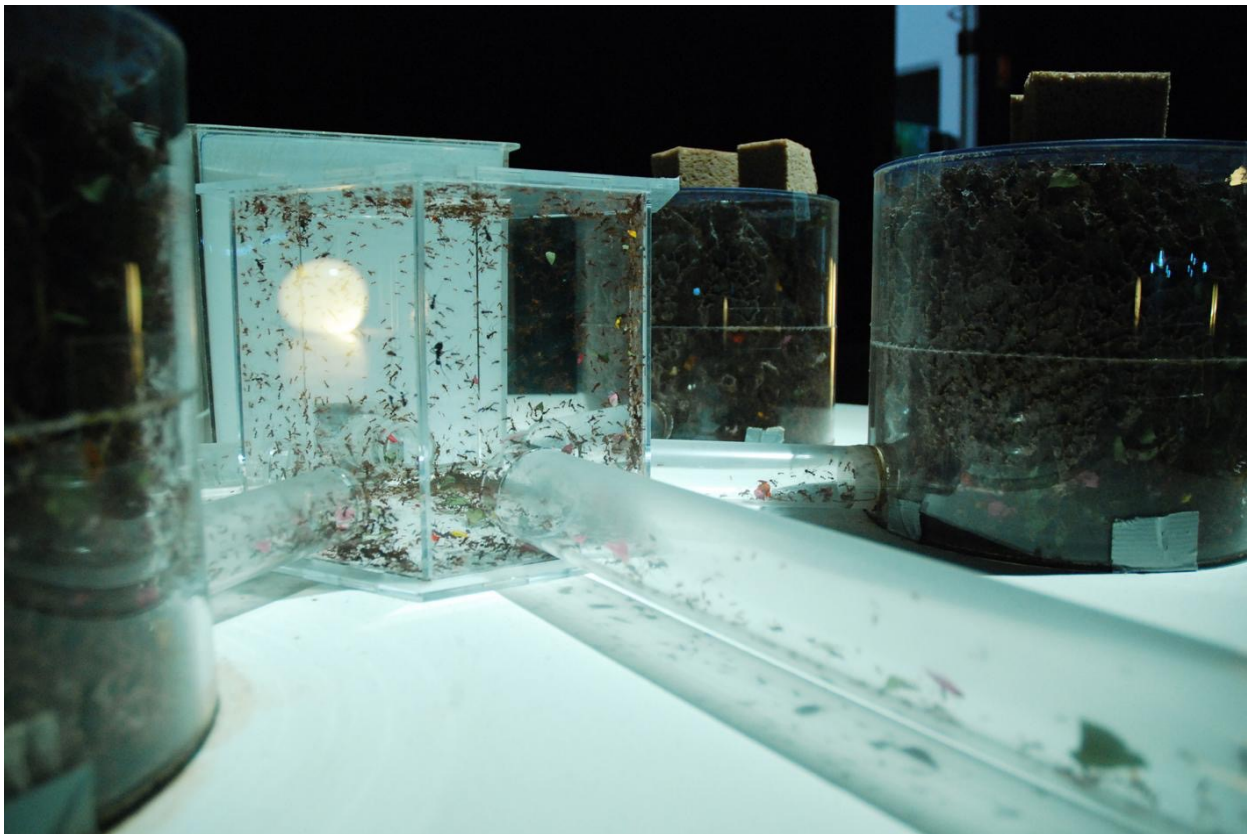
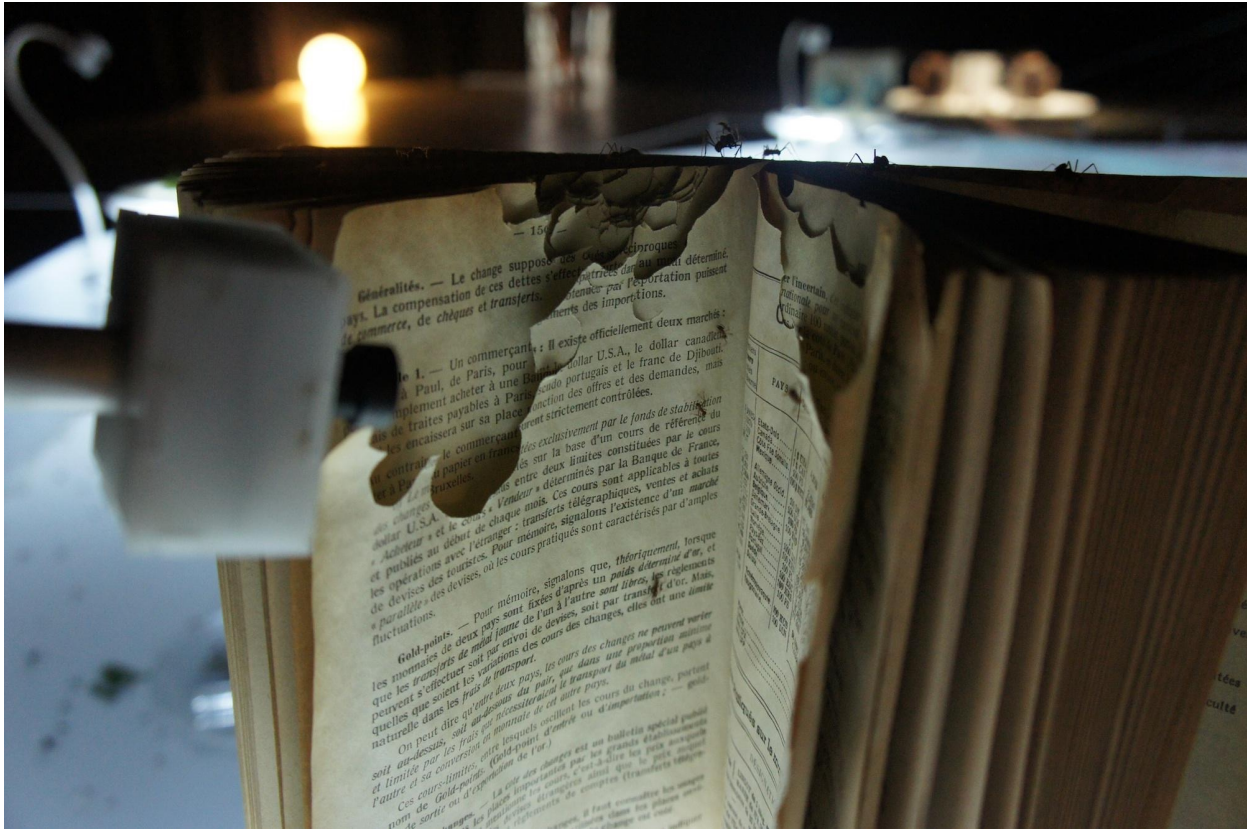
"The Tragedy of the Commons" meditates on the 1968 article by Garrett Hardin and its implications on community, sharing, gain and loss. The well studied foraging schemes of Atta leafcutter ants have a wide range of applications, specifically in the world of finance. While the ants' behavior optimizes cooperation towards the good of the colony, our ant models are used to predict market tendencies, investment returns and other instruments for private profit.

The installation provides a dynamic foraging space for the ants that gives them access to selected pairs of food sources with poetic significance: rose petals v. fresh leaves laced with eucalyptus; pieces of thin plastic with an attractive texture, or a pocket world atlas with colorful pages and the smell of orange extract. In every case, the ants optimize the seemingly difficult decision towards the best outcome for the community; the process is rapid, theatrical and in the case of this work highly visible.

<http://robinmeier.net/?p=738>



Robin Meier & Ali Momeni: *The Tragedy of the Commons*, 2011
Courtesy of the artists
Photos: Aurélie Cenno



Robin Meier & Ali Momeni: *The Tragedy of the Commons*, 2011
 Courtesy of the artists
 Photos: Robin Meier / Aurélie Cenno



Robin Meier & Ali Momeni: *If The Lion Could Speak*, 2012
installation with beehive, loudspeakers, microphones, cameras, videoprojectors
Curated by Virginie Bourget
Produced by Domaine Garenne Lemot and the Conseil Gönéral Loire-Atlantique, Clisson France
Courtesy of the artists

During the summer of 2012 Robin Meier and Ali Momeni created a transparent bee hive encapsulating the outdoors of the beautiful Domaine Garenne Lemot inside the gallery located in the park.

Inspired by the Voyager space probe launched in 1977 the artists create this hive to engage a dialogue with the bees. Reinterpreting the music which was included on NASA's Golden Record and sent into space onboard the Voyager probe to communicate with extraterrestrial life forms the artists play with the universality of organized sounds to create this dialogue.

Half space farers on noah's arc - half alien life form themselves the bees represent the artists desire for inter-species understanding and cooperation. As a melancholic afterthought the title for this piece quotes Wittgenstein's famous phrase: "If the Lion could speak, we would not understand him".

<http://robinmeier.net/?p=974>



Robin Meier & Ali Momeni: *If The Lion Could Speak*, 2012
Domaine de la Garenne Lemot
Photos: Robin Meier & Ali Momeni



Robin Meier & Ali Momeni: *If The Lion Could Speak*, 2012
Domaine de la Garenne Lemot
Photos: Robin Meier & Ali Momeni



Photo: ©Pierre Antoine

Robin Meier & Ali Momeni: *A Tentative Call to the Other*, 2010

Sound installation with hanging loudspeakers

Curated by Angéline Scherf and Maxime Hourdequin

Produced by « Imaginez Maintenant » with support by Conseil de la création artistique

Courtesy of the artists

Musée d'Art moderne de la Ville de Paris/ARC

A Tentative Call to the Other consists of a forest of suspended loud-speakers as well as a large speaker nearly two meters in diameter. The installation is situated at the entrance of the Dufy Hall at the Musée d'Art Moderne in Paris.

Within this immersive sonic environment, the visitor discovers the barrage of electromagnetic activity that surrounds us. Invisible but omnipresent, these signals are picked up with a special antenna placed on the roof of the museum. In parallel with the sonified electrical activity, visitors also hear sounds originating in outer space, picked up by ESA's CoRoT Satellite, that are made audible in real-time thanks to a collaboration with the Paris Observatory.

The diffusion of these sounds is punctuated by interviews with astrologers, hymns, and incantations of ritualistic prayers in Southeast Asian languages. This installation thus offers a contemporary reinterpretation of the painted mural by Raoul Dufy, *La Fée Electricité* (1937), itself a commentary on the impact of the urban electric grid human society.

<http://robinmeier.net/?p=397>

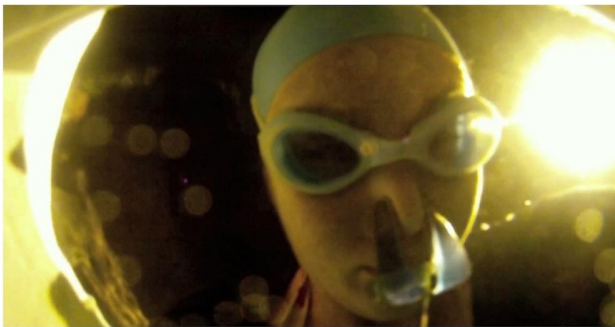


Photo: ©Pierre Antoine



Photo: ©Pierre Antoine

Robin Meier & Ali Momeni: *A Tentative Call to the Other*, 2010
Sound installation with hanging loudspeakers
Courtesy of the artists
Musée d'Art moderne de la Ville de Paris/ARC



Robin Meier: *The Body is a Vessel*, 2010
Performance for freediver and amplified sounds
Curated by Oliver Schneller (kleiner Wasserspeicher, Berlin)
Duration variable, minimum 15 minutes
Produced by the SuperCollider Festival, Berlin and the Haute Ecole Ingénierie, St. Imier, Switzerland
Courtesy of the artist

The Body is a Vessel is a musical composition determined and performed by the human body. Special microphones and sensors let us listen to the physiological transformations of professional freediver Elisabeth Kristoffersen.

Submerged under water, which is contained in a rowing boat on stage, Kristoffersen will hold her breath for up to six minutes, letting us experience the changes in her body in real time. The diver's strict organization of time during preparation and diving form the basic structure of the music. The sounds of the heart, lungs, bloodflow and diaphragm are used as musical material and heard live in the hall. Using an EEG, changes of brain activity are made audible and take us even deeper into the diver's body.

The Body is a Vessel submerges us in a baptism set to the sounds of science. protective and exposing, this work explores the perspectives of human evolution.

<http://robinmeier.net/?p=487>

Research

As a student, scholar and artist Robin Meier participates in various fields of research. His primary field is music, composition, sound and acoustics at IRCAM Centre Pompidou where he develops novel algorithms for sound transformation, synthesis and computer aided composition.

Through his studies of cognitive sciences and philosophy at the Ecole des Hautes Etudes en Sciences Sociales Meier also developed various algorithms and systems of artificial intelligence inspired by biology and neuroscience.

As an artist, in collaboration with various specialized labs, Meier also delves into experimental ethology studying the behavior of mosquitoes, ants, bees, fish or even bacteria and relating these behaviors to theories of the human mind and artificial intelligence.

Finally, Meier tries to integrate all of these fields in his art by using them for programming, robotics, electronics and his dream of making something out of nothing.

Bio

Robin Meier is an artist and musician based in Switzerland and France. His interests lie in the emergence of natural and artificial intelligence and the role of humans in a world of machines. Meier tries to make sense of these questions through musical compositions and installations. Referred to as “Artist of the future” (le Monde), “Maestro of the Swarm” (Nature) or just “pathetic” (Vimeo) his works are shown around the globe, most recently at the Domaine Pommery in Reims, the Palais de Tokyo and the Museum of Modern Art in Paris.

Robin Meier also works as a musician and computer music designer for IRCAM / Centre Pompidou (Paris), CIRM (Nice), Radio France and many others.

Robin Meier

born November 24 1980 in Zug, Switzerland

- 2000 Type A "Maturité" (Classical Greek/Latin), Kantonsschule Zug
 2000-2005 Music Composition with Madeleine Ruggli, Zürich, Peter Benary, Lucerne and
 Electro-acoustics with Michel Pascal at CNR/CIRM, Nice
 2003 Center for New Music & Audio Technologies (CNMAT) with David Wessel, University of
 California, Berkeley
 2004-2007 Ecole des Hautes Etudes en Sciences Sociales (EHESS), Paris
 Diplômé de l'EHESS in Cognitive Philosophie "Models of cognitions and their
 application to art". Advisor: Prof. Jérôme Dokic (Genève)

Selected Exhibitions

- 2015 Solo Exhibition: **Fossil Records**, Galerie Laurent Mueller, Paris
 Solo Exhibition: **Synchronicity**, Volkshaus, Art Basel, Basel
- 2013 **Truce: Strategies for Post-Apocalyptic Computation**, Sonica, Glasgow
Five Dreams of Nikola Lenivets, NCCA, Kaliningrad, Russia
Five Dreams of Nikola Lenivets, Nikola Lenivets, Russia
Human Use of Human Beings, Seconde Nature, Aix-en-Provence
Human Use of Human Beings, Natures Artificielles, Gare St. Sauveur, Lille
Human Use of Human Beings, Festival Exit, Créteil, Paris
- 2012 **Truce: Strategies for Post-Apocalyptic Computation**, Théâtre Garonne, Toulouse
A Tentative Call to the Other, Sound Reasons Festival, What's up Bharat, New Delhi
If the Lion could speak, with Ali Momeni at Domaine de la Garenne Lemot, Clisson
Truce, Musée des Beaux Arts, Nantes
- 2011 **plis / replis**, with Ali Momeni at Domaine Pommery, Reims
The Tragedy of the Commons, with Ali Momeni Palais de Tokyo, Paris
Experientiae Electricae, Espace Mendès France, Poitiers
- 2010 **The Body is a Vessel**, SuperCollider Festival, Berlin
Serenity and Serendipity, Madras-Madrid, Auditorio Nacional de Musica, Madrid
Truce: Strategies for Post-Apocalyptic Computation, DYNASTY, Palais de Tokyo
A Tentative Call to the Other, DYNASTY, Musée d'Art Moderne de la Ville de Paris
- 2009 **Truce: Strategies for Post-Apocalyptic Computation**, SIGGRAPH, Yokohama
Truce: Strategies for Post-Apocalyptic Computation, Spark Fest., Minneapolis
- 2008 **Bipperlisi**, Kuratorium Solothurn, Solothurn - Langenthal
Last Manoeuvres in the Dark, Palais de Tokyo, Paris
 with Raphael Siboni, Fabien Giraud and Frédéric Voisin
- 2007 **Experiments in Fish-Machine Communication**, Projet Diligence, Nice
Remember Me?, Artrepc Gallery, Zürich with Noël Dernes
- 2006 **Taxidermy**, Forum Neues Musiktheater, Stuttgart with Olivier Pasquet
Symphonie des Machines, Sophia Antipolis with Frédéric Voisin
- 2004 **For Alan Turing**, Festival Manca, Nice
Caresses de Marquises, Nuit Blanche, Gare de l'Est, Paris with Frédéric Voisin

Press

Selection:

- *Maestro of the Swarm* by Laura Spinney, Q&A in Nature Magazine, Jan 2012
- *The Tragedy of the Commons* by Violaine Boutet de Monvel, in Art Review, Sept 2011
- *Love Buzz* by Emily Bick, in The Wire, Oct 2013



In *The Tragedy of the Commons*, artists Robin Meier and Ali Momeni recorded the sounds of foraging ants.

Q&A Robin Meier

Maestro of the swarm

Swiss acoustic artist Robin Meier manipulates the sounds of insects and birds to create ethereal soundscapes. As his mosquito-inspired musical installation *Truce* is aired in the French city of Nantes, he talks about firefly synchrony and setting up feedback loops in nature.

Why did you choose to work with mosquitoes?

Male mosquitoes serenade potential mates with a 'love song' by vibrating their wings. They synchronize their wingbeats with those of the females to mate in mid-air. I first read about this in a 2006 paper by entomologist Gabriella Gibson and neurobiologist Ian Russell (*Curr. Biol.* 16, 1311–1316; 2006). The constant *glissandi* — gliding from one pitch to another — and 'tuning in' of mosquito wingbeats reminded me of *dhrupad*, an ancient form of Indian classical music often sung by brothers in unison. My collaborator Ali Momeni and I played male mosquitoes some *dhrupad* and, sure enough, they tuned in. We call the piece *Truce: Strategies for Post-Apocalyptic Computation* because we see it as one way that computation could evolve. In the future, the environment could become an extension of our cognitive processes.

How did you become interested in this area?

I'm a musician but studied cognitive philosophy, and am very interested in artificial intelligence. One of my first installations, with French experimental musician Frédéric Voisin in 2004, involved manipulating



artificial neural networks to make music. The idea of collective intelligence is a theme that is common to all my work. Intelligence isn't just an intrinsic property; it lies in the interaction between organisms and environment. It is all around us, and I want to harness it to make music.

How did that lead you to work with ants?

With the help of scientists at the Laboratory of Experimental and Comparative Ethology at the University of Paris 13, I conditioned leafcutter ants to associate quinine — which they dislike — with different smells and foods. We built a star-shaped installation called *The Tragedy of the Commons*, which provides a choice of six foods, each in one arm of the star [see go.nature.com/mvbswm]. Here we manipulate the ants' foraging decisions through smell. Once they associate quinine with a certain food, we take the quinine away and the smell of that food alone will put them off. They communicate this to other ants, partly through sound signals called stridulation, when they rub body parts together. Using strategically placed microphones and loudspeakers, we have created a soundscape of their foraging decisions on two levels: an amplification of the stridulation, and an amplification of the sounds of ants eating at the positions they choose.

The sound therefore varies spatially across the installation.

And what about your firefly work?

My virtual firefly project hinges on synchrony. Fireflies synchronize their flashing for courtship purposes. Groups of males of the same species seem to do this so that the passing females can see them better — the flashing pattern is species-specific. When it happens, you see distributed pockets of synchronous flashing appear before they join up and an overall synchrony emerges. Although the behaviour itself is complex, all you need to generate it virtually is a number of identical 'organisms', each equipped with some basic perceptual apparatus and an internal mechanism for adjusting the flashing speed. We have simulated this on a computer.

How do you turn virtual firefly synchrony into music?

You could think of the fireflies as a sort of amateur orchestra and me as their conductor, only I go further by tinkering with their virtual brains. We manipulate their flashing by altering those underlying parameters — the ones that determine how they perceive and generate flashes — and so change the rhythm or even break up the synchrony completely. My collaborator on this project, Canadian artist Yan Breuleux, is interested in the visual effects that this allows him to create. I transform the flashes into sound and create audio effects using standard music-sampling software.

What other projects are in the pipeline?

I've long been interested in the neurobiology of songbirds. Starlings are fascinating because they're such good learners. They imitate car alarms, mobile phones, anything. This year, we intend to build birdhouses in the Camargue nature park in the south of France, and we hope that starlings will nest in them. We'll install speakers and play melodies to them. Because starlings are migratory, the fledglings could carry the tunes far and wide.

Are you 'playing God' with animals?

No: God is top-down, we're bottom-up. I think of what we do as more like hacking. We may end up manipulating a few starlings, for example, and our manipulation may be transmitted, but probably only in a small way before it fades like a ripple on a pond. It's not just us manipulating the organism. The organism reacts to our manipulation, we react to its reaction, and so on. We set up feedback loops. ■

INTERVIEW BY LAURA SPINNEY

ROBIN MEIER & ALI MOMENI

Robin Meier & Ali Momeni:
The Tragedy of the Commons
Palais de Tokyo, Paris
8 July – 18 September

The Tragedy of the Commons consists of a live experiment in the form of an installation, in which thousands of Atta ants – commonly known as leafcutter ants – create a choreography while reacting to certain flavours and smells expertly selected by Robin Meier and Ali Momeni with the help of the Laboratory of Comparative and Experimental Ethology of Paris 13 University. The installation is structured via three circular boards, all connected to one another either directly or through video surveillance and sound. The first of these, at the show's entrance, is occupied by the ant colony and is physically linked to a second and central board through a long transparent tube; the insects move back and forth through this, accessing goods and bringing them to their nest. In this instance, the goods (or 'commons') are a mix of privet and rose leaves and petals, discharged daily onto the central 'platter'. Contact microphones and cameras, set up on its entire surface, amplify the sound of the ants' stridulation and offer live playback of their gleaning on a couple of monitors, installed – for closer observation – on the third and last board at the back of the room.

In other words, Meier and Momeni have created a metaphoric 'food stock market' for the ants, since every smell or flavour available becomes merchandise capable of affecting their collective behaviour. Accordingly the two artists, who share a background in electronic and experimental music, here manage to make audible and visible a mechanism of social manipulation. On the sonic level, the amplified sound within the installation space corresponds to the ants' more or less sustained activity – which is particularly effective, grating and loud when, for example, rose petals and leaves are 'served' on the central 'platter'; for, logically enough, the more the ants are fond of a certain flavour, the more greedily they cut that certain plant within their mandibles and, accordingly, the more noise they make. On the visual level, when the central

board is flooded with goods – and the insects' gleaning drastically intensified – quite stunning traffic jams occur in the tube that the ants use to bring food back to the colony.

The transition from the purely biological and ethological experiment to the social and political critical discourse is cleverly or thoughtfully supported by a few hints on paper: namely an atlas and an exchange rate (or currency) book that have been installed with the 'commons' on the central board and sprayed all over with natural scents such as orange blossom water. Inevitably the attractive smell of these two manuals leads the voracious ants to tear their pages to pieces. In this installation that evolves with a living colony, then, the symbolic mechanism of the capitalist market – which functions via the creation of demands that largely exceed the vital and primary needs of the population – manifests itself within an aesthetics of saturation, and therein appears the actual 'tragedy of the commons'.

VIOLAINE BOUTET DE MONVEL

CEAL FLOYER

Ceal Floyer:
Wishes, Wishes, Wishes
2 June – 27 August

It doesn't get white is older than this is the new exhibition space occupied by Ceal Floyer, in a converted architect's office not far from the National Gallery in Berlin, art is presented as something of a game of hide-and-seek. And as we learn from Michael Smeets's cover for the Berlin's art White album, white is white against a particular kind of consciousness from the viewer. This applies as well as to the more immediate problem that Ceal Floyer is showing

in her third solo exhibition at her Berlin gallery. For instance, there's a white sculpture resembling 'ling' – in the reference almost entirely empty white cube of this this gallery space. At first sight it looks like a solid plinth. As you get closer, however, you soon see that this piece, Paper the series, is a stack of sheets of white paper. Or more precisely, a stack of better sheets of white paper, according to the legend 'huge sheets of white' in the bottom right hand corner of the top sheet. In order to check the truth of this statement, even if the text does seem a somewhat 'ling', you would have to fill up the top sheet. The work refers to the tradition of folk musician Tom's made of papers for visitors to take away – would suddenly seem that much less solid.

Following Monday items to close visual reading and perhaps, allowing them to be given to all (and Floyer's preferred artistic strategy). A few metres away from Paper III is a floor-standing sculpture in case in height leaning against the wall. However, since all the topmost rings are missing, the holder is completely unstable. With these 'instable' floor pieces, a significant variation in effect that seems to invite them to act – as in Floyer's top ladder floor (and, in some way, one example, Floyer's own particular game of hide-and-seek continues in her wall piece *Opposite (Reading)*, of art. A filled and perforated piece of white of wood paper serves as a decorative piece. This time the viewer's mind may well turn to Robert Rauschenberg's own abstractly monochromatic, monochromatically white, white in her wall piece.

But it is at this point, if you believe, that a problem emerges in this German-born new work series exhibition, a problem that was already in evidence in some of Floyer's solo exhibitions at the KW Institute for Contemporary Art, in Berlin. Floyer's art does not benefit from being viewed as music. The juxtaposition of a number of individual pieces denies them of the organic memory that is so appealing in other circumstances. This happens because, in comparison with each other, the spaces of her monochromes are more or less clearly set out and become so much more comprehensible, all the more so since it is only when to art that is rather familiar in the white cube context.

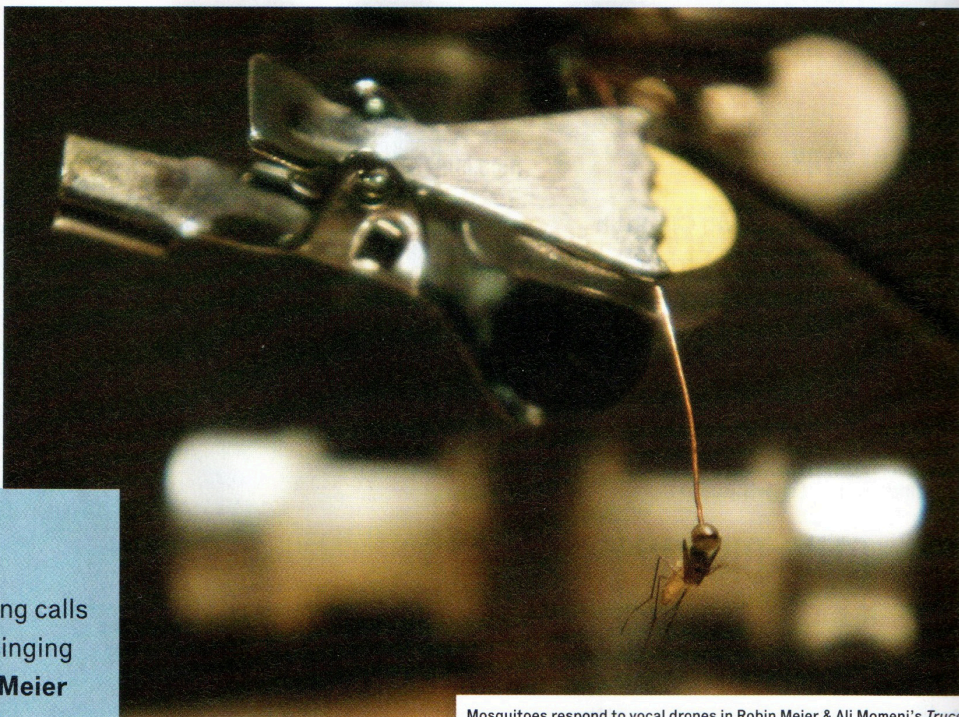
But as the viewer departs, the second life again, for 'ling' at the doorway leading into the exhibition is a German *Wishes*, once with the word 'Wishes' written upside down so that it is only legible as we make our exit. It would be hard to see Floyer including her sense of humour like this more often. After all, a white can open up roads to new historicist readings effectively than any number of art historical allusions.

RAMONA STANGE
Translated from the German by Peter Clark

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VE

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Mosquito mating calls and dhrupad singing inspire **Robin Meier & Ali Momeni's** insectoid installation



Mosquitoes respond to vocal drones in Robin Meier & Ali Momeni's *Truce*

Robin Meier and Ali Momeni create installations with electroacoustic sound set-ups using live ants, bees and mosquitoes, creatures that have all been chosen for their talents, as Swiss artist Meier puts it – their patterns of behaviour. These patterns are not programmatic and the animals can behave in unpredictable ways as they respond to and shape their changing environment. It's a quality Momeni calls "animal warmth", something that increases human audiences' engagement with the material.

In the case of *Truce: Strategies For Post-Apocalyptic Computation*, three mosquitoes 'sing' in response to computer-generated drones. *Truce*, which will be shown at Glasgow's Sonica festival later this month, was first realised in 2009. It was partly inspired by an article in *Nature* by Gabriella Gibson, an entomologist, who described how male mosquitoes tune in to each other's wingbeat frequencies when competing for females. "This struck us as something completely romantic and magical," says Iranian-born Momeni, who currently teaches at Carnegie-Mellon University in Pittsburgh. He and Meier started developing *Truce* while Momeni was based in Minneapolis. "Since the methodology for producing this effect was described in detail in the article, we decided to try in person. At the time, I happened to be working at the University of Minnesota – in the land of 10,000 lakes – and the university has a lot of facilities for examining mosquitoes."

With mosquitoes in place, Meier and Momeni considered which style of music would best complement their tuning behaviour in order to create a sound performance incorporating the insects. As self-described obsessives about Indian classical singing, they found their answer in the improvised

alap sections of dhrupad, which are unaccompanied by percussion. "Ali and I were driving home after a night work session at the studio," says Meier. "We were listening to dhrupad, saying nothing, as suddenly we were struck by the similarity between the two brothers singing and the mosquitoes tuning in. Dhrupad is all about tuning in. A dhrupad singer's ear is probably as sensitive to pitch as it can get."

Momeni adds: "There is one feature of dhrupad that was so unmistakably relevant to the way the mosquitoes sang together, and that's the pervasiveness of glissandi. In dhrupad, it's common for it to be sung by one or more brothers together, because they have very similar voices. Two similar voices on top of one another, on pitches that are close to one another, produce a chorus, and all of these effects that are greater than the sum of their parts."

The sexual competition of the mosquitoes also finds its echo in the feeling of a duel between singers that sometimes surfaces in an intense and athletic round of dhrupad singing, as it begins slowly and then accelerates in tempo, pushing the performers to the limits of their capabilities as they mimic and challenge one another to keep the pace. "There's an unspoken competition – it's that way of one-upping the other person," says Momeni.

In *Truce*, the computer plays a dynamically stretched dhrupad sample, each mosquito matches its pitch to this computer voice, and the computer analyses this and responds with a third voice. Together, the drones glide over one another, their layers filling the room. The sound volume of the mosquito flying controls a flickering lightbulb hanging overhead, and the mosquito is filmed by a

miniaturised camera, with the image projected on the wall behind. The flickering lights and the projections show when the mosquitoes, too, begin to tire, and need a rest.

When the mosquitoes are not flying, the room crackles with noise from amplified wires wrapped around the mosquitoes' landing platforms. The flickering lights and projections emphasise each creature's individual effort and contribution to the system, and its importance to the whole. Spectators can engage with the mosquitoes by breathing on them (they are attracted to carbon dioxide) or gently extending a finger for each one to explore, encouraging them to fly. In a way, this set-up humanises the mosquitoes: they become impassioned actors singing themselves to exhaustion, instead of pests in need of a swat.

So far, *Truce* has travelled to Minneapolis, Paris, Toulouse, Nantes and Yokohama. For Sonica, Gabriella Gibson's lab helped to procure the mosquitoes. For past events, however, Meier and Momeni have worked with curators to source their mosquitoes from places ranging from the Louis Pasteur Institute to pesticide companies. "I like this part very much because it puts not only us artists but also museum personnel in touch with these creatures," says Meier. "During the preparations for the show in Japan, I had a lot of trouble finding mosquitoes, and I remember the organiser calling me to say that he'd just had a mosquito sit on his arm and he wouldn't dare kill it." □ Robin Meier & Ali Momeni's *Truce: Strategies For Post-Apocalyptic Computation* is a part of Sonica 2013, and shows at Glasgow CCA, 31 October–3 November. sonic-a.co.uk
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