

by Barbara Schultz



Dutch engineer Manuel Cooymans miking a "vliegerfoon" attached to the string of a kite (faintly visible at the upper right).

PHOTO: LUDMIL VAN HOOGEN

# DREAMS OF TRANSFORMATION

NEW MUSIC FROM THE NETHERLANDS

by John Michael Weaver

All music is experimental. Each artist who goes into the studio hopes to create new sounds and new melodies, to affect listeners in new ways. That's why new music-recording technology is developed, and that's why American producer/engineer/professor John Michael Weaver jumped at the chance to join a trio of Dutch composers to make *Dreams of Transformation: New Music From The Netherlands*.

The group calls itself The Next Step, and its goal at the outset of this research-oriented recording project was to extend the frontiers of musical expression and recording techniques while using relatively accessible technologies.

Weaver spent an eventful summer in Holland, co-producing the *Dreams* CD with group member Manuel Cooymans, in a small commercial studio called DJC (Digital Jazz and Classical) Recording, located in the town of s'Hertogenbosch. The Next Step consists of Cooymans, a producer, recording engineer and music teacher,

as well as composer; avant-garde composer Michèl Koenders; and Leo van der Zijden, a composer, computer programmer, software developer,

## Dreams of Transformation—Song by Song

"Scramble" by Leo van der Zijden

"Scramble" is an electronic version of an acoustic composition originally conceived for three percussionists playing traditional instruments and industrial objects like steel water pipes. The score was created with the help of an algorithmic composition program called CAST, written by Leo van der Zijden, who says that this program was designed to emulate the psychological processes of elimination, transformation and multiplication that composers often rely upon when they write music.

Working with a number of predefined musical "blocks," the computer generated a great deal of musical material, which was then edited and reorganized by van der Zijden. Finally, the completed composition was translated into a standard MIDI file format, read into Performer and used to trigger two Akai samplers during the final mix.

audio engineer and sound designer. Before they met Weaver, the members were already known for staging elaborate multimedia events, often in unusual settings, such as castles, kite

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festivals and Spanish beaches.

To make *Dreams*, Weaver and his Dutch colleagues "relied on both relatively traditional and new technologies (everything from cannibalized gramophones to MDMs and DAWs), depending on the requirements of each particular piece of music. Computers played a key role during every phase of the production process, including composition, sound synthesis, performance, signal proc-

**"Elementary" by Leo van der Zijden**

"In fact, what we were trying to accomplish was 3-D animation, realized purely with sound instead of images."

—Leo van der Zijden

"Elementary" has an abstract narrative structure that traces a journey through a fictional subterranean world. During the first phase of the voyage, we pass through a torrential wall of noise and emerge into a kind of aural hologram, representing a peaceful grotto. Once inside, we glide along the surface of an underwater lake while water drips from imaginary stalactites. The trip ends as we pass through another tumultuous din, created by a waterfall that is actually made up of multiple copies of the same drops we heard in the grotto.

To suggest a sense of movement through the virtual cave, the timbre, rhythm and location of each individual water drop were precisely calculated and progressively altered by means of an algorithmic composition program written by the composer, Leo van der Zijden. The score of this piece looks more like a topographical map than a piece of sheet music. This "map," once transposed into MIDI messages, was used to trigger the samplers and control the DSP devices used to create the illusion of space and motion.

essing and recording.

"We spent a great deal of our time in the studio," Weaver says, "exploring the relatively under-used capability of DSP devices to respond to real-time parameter and program-change commands sent in the form of MIDI messages. Experimentation with 3-D audio, achieved through DSP (Roland's RSS system) and Jocklin system stereo miking techniques, was one of our major objectives.



**Multitalented Dutch musician Manuel Coymans helped compose, perform, produce and record the music on the *Dreams of Transformation* CD.**

**Composers Leo van der Zijden and Manuel Coymans**



PHOTOS: DOBRIE BURAK

"After a great deal of testing, we found that our ability to reproduce or simulate a credible binaural psychoacoustic experience using these methods depended on a number of factors," he adds. "These included the timbre, envelope, mobility and quantity of the individual sound sources involved; the type of monitoring sys-

**"Fractime" by Michèl Koenders**

The title of this entirely electronic composition is an amalgam of the words fractal and ragtime. Self-designed software incorporating fractal equations made the initial melodic and harmonic choices for this piece. During the mix, the same concepts were used to generate the MIDI data that triggered real-time parameter changes within a Yamaha TX816 FM synthesis module and a Roland RSS unit.

tem employed; and the acoustical characteristics of the playback environment, as well as the listener's position within that space."

Although producers of the *Dreams* project were often engrossed in tech-

nical matters, their principle focus was always the music they had come together to record. "One of the things that I like most about the way the project turned out," Weaver notes, "is the variety of musical and emotional experiences you can have while listening to the CD. Some pieces are rhythmic and visceral. Others are more environmental and abstract—even eerie and disturbing at times. These contrasting moods reflect the composers' distinct personalities and artistic intentions. The force that unifies the album, from a conceptual standpoint, is the commitment to experimentation that produced such diversity." John Michael Weaver details more about the production process behind the unique sounds you hear in this collection of *New Music From The Netherlands*. —BJS

**SETTING UP**

What makes this a very exciting time for the recording arts is that, to a great extent, our field has finally reached the long-awaited point of technological parity. It was the recent

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**INTERNATIONAL UPDATE**

introduction of affordable MDMs and DAWs that put us over the top. Although there are still significant differences between the top-of-the-line and less-expensive studios and equipment, we are much closer today than ever before to the point where inde-

*"How to Rasp" by Manuel Cooymans*  
This piece was written for three percussionists playing various types of Mexican and Cuban rasps. In a live setting, the players would be situated on three different stages encircling the audience. For the recorded version, composer Manuel Cooymans overdubbed each part separately onto a Tascam DA-88, and these tracks were subsequently positioned (front, rear-left and rear-right) within a virtual acoustic environment, simulated by means of a Lexicon 300 and a 4-channel RSS unit.

pendent producers and artists can achieve respectable production values while working with relatively modest budgets.

Before we began recording *Dreams of Transformation*, we had already

secured a small research grant from Loyola Marymount University in Los Angeles, but we still couldn't afford to buy or rent all of the equipment we wanted to experiment with. So, we approached vendors and studios in Holland and Belgium, asking for equipment loans. Amazingly, almost everyone we contacted agreed to help us, including the regional distributors of Tascam, Lexicon and Roland. In fact, the owner of a nearby facility, PreSound, not only loaned us his RSS unit but personally delivered it to our door.

Once all the equipment was assembled at DJC Recording, sequencing, sampling and synthesis were accomplished using Mac IIcx, Mac SE/30 and Atari ST computers; two Akai S1000 samplers; Yamaha TX802, TX816 and DX7II synths; a MIDI Time Piece; and Sound Designer II, Performer, Digital Performer, Finale, Unisyn, C-sound, TurboSynth, S-edit, S-base and self-written software. Notable recording gear included a Soundcraft console; Tascam DA-88, DA-30 and DA-P20 recorders; Lexicon 300, LXP-1 and LXP-5, and Yamaha SPX990 signal processing gear; a pair of Behr-

inger Composers; and a 4-channel Roland RSS system.

DJC's main monitoring system is a high-end D'Appolito satellite configuration designed by Maes Systems (Holland), consisting of modified Visatone ribbon tweeters, Viva 5-inch midrange elements and a dual 8-inch subwoofer. In the near-field, we monitored on Duran Audio's self-

*"St. John's Prelude" by Manuel Cooymans*  
This piece is a short improvisation played on a didjeridoo by Australian musician Alfons Crebolder. It was recorded direct-to-DAT in St. John's Cathedral in s'Hertogenbosch, using a Jecklin disc and a pair of Sennheiser MKH20 microphones.

powered Axys NF-1s and modified Yamaha NS-10s. All final mixes were also checked on Sennheiser Ovation II headphones.

**EXTREME AND UNUSUAL COMBINATIONS**

During the making of *Dreams of Transformation*, we took a wide range of approaches to composition,

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INTERNATIONAL UPDATE

sound generation, music performance, signal processing and recording. Each song required different equipment and techniques. In many cases, this led us to explore the latent potential of old as well as new

**"Modus" by Michèl Koenders**

"One of my goals was to allow musicians working with digital sounds to do what was possible with analog synthesis—make real-time, continuous sound modifications."

—Michèl Koenders

"Modus" is an interactive electronic percussion composition featuring digitally sampled and FM-synthesized sounds. What you hear on the *Dreams of Transformation* CD is an edited version of a live, semi-improvised jam session between a musician and a computer running an interactive composition program. During this performance, a Roland Octapad served as a multipurpose input device, each pad having been assigned a different function. For example, Koenders explains, "One pad of the Octapad is used to control the record and playback functions of an interactive sequencer. This allows the performer to play polyrhythmic duets with himself or to temporarily leave the performance completely to the computer." The Octapad could also be used to trigger real-time, envelope-parameter changes in a Yamaha TX816 module.

technologies. It also resulted in some unusual juxtapositions.

For example, the electronic composition "Fractime" is almost entirely the product of a fractal-based, algorithmic composition program, designed to make choices about the pitch, rhythm, envelope parameters and the spatial position of FM-synthesized sounds. At the other end of the spectrum, "St. John's Prelude" is a purely acoustic piece that consists of a live didgeridoo improvisation, recorded direct-to-digital in a 15th-century cathedral (with an RT of 11 seconds) using the Jecklin system OSS miking technique.

The contrast between other pieces on the CD is equally striking. In "Pijl & Boog," we hear a cello player performing music "composed" by a computer. "Kitewinds," on the other hand, features a score written by a human being but "performed" by a computer. Naturally, such descriptions oversimplify the complex processes involved in creating these pieces.

**EXPLORING VIRTUAL SPACE**

Many of the compositions found on *Dreams of Transformation* were originally written for live multimedia events, where the music would be reproduced through quadraphonic speaker arrays. For the CD version of these pieces, we wanted to go beyond the limits of conventional stereo without using more than two tracks. That's why we experimented with the Roland Sound Space system.

We also wanted to incorporate DSP parameter and program changes into our MIDI sequences whenever possible. The ability to automate effects changes opens up a world of creative possibilities, so it was a tremendous advantage to work with composers who understand this po-

**"Kitewinds" by Manuel Cooymans**

Cooymans says that "Kitewinds" is an ode to the forces of nature." This piece's seemingly random sequence of auditory events conceals a meticulously calculated musical structure. According to Cooymans, nearly all of the sound sources heard in this piece belong to one of four elemental categories: earth, wind, fire or water. These include an earthenware urn, glass salad bowls, a ceramic coffee cup, a wooden table, a foot scraping along the ground, a babbling brook, a raging bonfire, gentle rain and howling wind.

The sound of wind is continually present throughout the entire 18-minute duration of "Kitewinds." The final mix of this piece contains four discrete wind tracks, positioned by means of the RSS system at equidistant points along an imaginary halo floating above the listener's head. No looping was involved in the creation of these extended wind recordings. Instead, each track was recorded separately in real time, using a "vliegerfoon" (kitephone), a self-made "instrument" consisting of the pickup and horn assembly of an old gramophone, attached to the string of a kite with a clothespin. As the gramophone's diaphragm vibrates in sympathy with the tug and pull of the airborne kite, haunting, ethereal music emanates from the horn and is captured by a handheld microphone.

tential and have the programming knowledge necessary to use it.

For example, the RSS system can automate azimuth and elevation changes via polyphonic aftertouch data. The standard procedure for doing this is to manually adjust these parameters on the unit in real time while your sequencing program records the changes. During the mix,

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this data can then be sent back to the RSS unit in the form of MIDI messages, and it will duplicate your original moves.

For some pieces on the *Dreams* CD, we wanted to skip this process and enter mathematically determined spatial-positioning coordinates directly into the sequencer. To accomplish this, one of our composers (Michèl Koenders) wrote a program that generates aftertouch data, which made it possible for us to record and edit RSS parameter changes even before the RSS unit arrived at the studio.

"Pijl & Boog" by Michèl Koenders  
"Pijl & Boog" ("Arrow & Bow") was created using an algorithmic composition program called CAC II, written by Koenders. CAC II is an object-oriented composition tool kit, consisting of a generative section that uses several fractal- and attractor-based algorithms and an artificial intelligence section (ART-2 neural network) that helps with decision making and the organization of musical materials.

This computer-generated piece was performed in the studio by cellist Eelo Beinema. During the mix, fractal equations were used to formulate dynamic MIDI pitch-shifting instructions for a Lexicon 300 and to calculate the constantly changing location coordinates that were sent to an RSS unit in the form of polyphonic aftertouch messages.

I believe that one of the reasons we received so much encouragement and support was that we approached *Dreams* like a pure research project. All too often, the potential of new technology remains relatively untapped for a long time after its introduction because people working under-the-gun on commercial projects usually don't have the time to experiment as much as they'd like. Our sponsors appreciated the fact that we wanted to experiment with new production techniques and equipment configurations. We put as much emphasis on process as we did on product.

*Dreams of Transformation* will be released this month on DJC Records, Holland. ■

*John Michael Weaver is a professor at Loyola Marymount University in Los Angeles, where he teaches sound design and recording. He thanks Manuel Coymans, Michèl Koenders and Leo van der Zijden for their substantial contributions to this article.*

## BITS AND PIECES

### EUROPE

Barcelona's **Duy Sonido** studio complex, which specializes in music, effects and dialog production and post-production for films and TV, acquired its second SSL ScreenSound, for digital audio editing in its new Studio 4...Swiss studio **Tonstudios Z** (Zurich) added a Scenaria digital audio/video production system to its Studio 1, as did another Zurich facility, Pro Ton Studios, which produces

30% of Switzerland's TV ads...In Paris, **Tigre Productions** purchased a Scenaria, and DC Audiovisuel installed a ScreenSound and SoundNet system...ASP's **Mobile** of Graz, Austria, installed a Soundtracs Sequel in the company's Mercedes Truck. The console was supplied by distributor Audiosales...**Fender Musical Instruments** opened a subsidiary in Dusseldorf, Germany. The 13,000-square-foot facility houses offices, a showroom and a warehouse...**Ampex Media Corporation's** European subsidiary **Ampex Media Europa, B.V.**, is now open in Nijmegen, the Neth-



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