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**ICONIC CISTERN SOUND RECREATED FOR TWO CONCERTS**  
**New Software Developed To Simulate Unique Cistern Acoustics for Two Concerts May 10**  
**@ EMPAC Concert Hall (Troy, NY); June 17 @ Winter Garden (NYC)**

**KINGSTON, NY, April 18, 2012** - - In 1988, musicians Pauline Oliveros, Stuart Dempster and Panaiotis, with audio engineer Albert Swanson, descended underground into a 14-ft. deep cistern in the Pacific Northwest and created “Deep Listening,” an iconic recording released by New Albion (1989) that developed an underground following.

The Fort Worden Cistern, since renamed the Dan Harpole Cistern, is a cavernous cylinder built in 1907 on a former Army base in Port Townsend, WA. The cistern is 186 feet in diameter, made of reinforced concrete, with more pillars per square yard than a skyscraper. It was built to hold two million gallons of water and to withstand bombing. *As an acoustic space, it was remarkable for its smooth frequency response, lack of distinct echoes and most notably, a long reverberation of 45 seconds at low frequencies.*

“Our dream after that first experience recording in the cistern was to take the cistern into the concert hall,” says Oliveros, celebrated forerunner of electronic music and founder of the Deep Listening Institute. “Now 24 years later, Deep Listening Band is very excited to have that dream come true.”

**In two public performances, cistern software developed by Jonas Braasch, Director of the Communication Acoustics and Aural Architecture Research Laboratory (CA<sup>3</sup>RL) at Rensselaer Polytechnic Institute, and his team, will simulate the acoustics of the cistern as the Deep Listening Band recreates the sonic environment for New York audiences in two performances: Troy, NY (May 10), and New York City (June 17). On May 10, guests are also invited to view the process of Pauline Oliveros and Jonas Braasch as they set up for the evening performance.**

Because the cistern is not well suited as a live concert venue—it is only accessible by a small manhole—even a few audience members would significantly reduce the characteristic reverberation time—new technology will simulate the cistern acoustics.

“The goal of the simulation was to bring the cistern to a larger audience so people can experience this iconic space live in its full immersion, explains Braasch. “Live concerts with a sizable audience are not possible in the real cistern because of accessibility and the fact that many people would absorb the characteristic sound of this unique space.”

Here’s how it will be done:

- An electroacoustic system with 32 loudspeakers will simulate the sound of the cistern in EMPAC's concert hall and the Winter Garden.
- Multi-channel impulse responses of the cistern (the echo footprint) will be rendered using a CAD model of the cistern. Various source/receiver positions are considered,

including those with special characteristics (e.g., flutter echoes).

- Using a combination of close-microphone techniques and additional room microphones on stage, the instruments of the Deep Listening Band will be captured, convolved and auralized with the simulated impulse responses. The levels of direct and reverberant sounds will be calibrated to receive the authentic sound of the cistern.
- Additional microphones will be placed in the audience area to process the audience members' own sounds with the same algorithm to provide the audience with the impression that it is sharing the same space with the musicians.

**THURSDAY, MAY 10, 2012**

**CURTIS R. PRIEM EXPERIMENTAL MEDIA AND PERFORMANCE ARTS CENTER  
(EMPAC), RENSSELAER POLYTECHNIC INSTITUTE, TROY, NY**

- **OPEN STUDIO: 11:30am-2pm**, EMPAC Concert Hall, Free and Open to the Public. Peek into the process of composer Pauline Oliveros and aural architect Jonas Braasch as they set up for the evening's concert.
- **PERFORMANCE: 7:30pm**, EMPAC Concert Hall, Benefit for the Deep Listening Institute Presented in collaboration with the Arts Department at Rensselaer, Free; donations to Deep Listening Institute will be accepted.

**PROGRAM FOR EMPAC CONCERT**

- **Land of Snows by Brian Perti**

with Brian Perti (Dung Chen Tibetan Horn), Stuart Dempster, Pauline Oliveros (Conches)  
Monique Buzzarté, Peter Zummo, Jen Baker (Digjeridus)

Cistern simulation technology by Jonas Braasch, Anne Guthrie, Sam Clapp

- **From Now On by Deep Listening Band (Oliveros/Dempster/Gamper)**

with Deep Listening Band (Oliveros, Dempster) and guest artist Brian Perti

- **Returning by Oliveros/Dempster**

with Pauline Oliveros (Voice, Accordion), Stuart Dempster (Trombone/Didjeridu)

- **The Single Stroke Roll Meditation by Pauline Oliveros**

with Ade Knowles and the Congeras, Richard Albagli, the Rensselaer Percussion Ensemble

- **Exit Sliding by Stuart Dempster**

Jennifer Baker, Monique Buzzarté, Stuart Dempster, Peter Zummo (four trombones)

**SUNDAY, JUNE 17, 2012**

**THE WINTER GARDEN, WORLD FINANCIAL CENTER, NEW YORK CITY**

Will perform as part of the Bang on a Can All-Stars' annual marathon, time TBA

**PROGRAM FOR WINTER GARDEN CONCERT**

- **Quasi-Infinity by Jonas Braasch**

Jonas Braasch (Soprano Saxophone)

- **Land of Snows by Brian Perti**

with Brian Perti, Dung Chen (Tibetan Horn), Stuart Dempster, Pauline Oliveros (Conches),  
Monique Buzzarté, Peter Zummo, Jen Baker (Digjeridus)

- **From Now On by Deep Listening Band (Oliveros/Dempster/Gamper)**

with Brian Perti and Deep Listening Band (Pauline Oliveros, Stuart Dempster)

- **Returning by Pauline Oliveros, Stuart Dempster**

Pauline Oliveros (Voice, Accordion), Stuart Dempster (Trombone/Didjeridu)

**Cistern simulation technology by Jonas Braasch, Anne Guthrie, Sam Clapp.**

**ADDITIONAL DETAILS: Cistern Simulation: Communication Acoustics and Aural**

**Architecture Research Laboratory (CA<sup>3</sup> RL), Rensselaer Polytechnic Institute**

Jonas Braasch (Director of CA<sup>3</sup> RL, Assistant Professor in the Architectural Acoustics program; Argeo Ascani: music curator (EMPAC); Todd Vos: Lead audio Engineer (EMPAC), Johannes Goebel, Director (EMPAC).

**Please note: Pauline Oliveros, founder of the Deep Listening Institute, celebrated icon of electronic art music and squeeze box maverick, turns 80 in 2012.** We're celebrating with a year jam-packed with concerts, new recordings, residencies, keynote addresses and Deep Listening Intensives throughout the world. Our website—[www.paulineoliveros.us](http://www.paulineoliveros.us)—offers the latest news, free downloads, interviews and more.

Visit the site's "oliveros@80" page to leave a birthday wish, share a memory, get a free download and read an interview. When composer John Luther Adams recently interviewed Pauline, they discussed process, Buck Rogers, explorations in how listening happens, and rediscovering polyphony via the People's Microphone of Occupy.

Did you know Oliveros received the 2012 John Cage Award from the Foundation for Contemporary Arts? Visit [www.paulineoliveros.us](http://www.paulineoliveros.us) to get the latest news.

**MEDIA CONTACTS:**

**Pauline Oliveros/Deep Listening Institute:**

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