FREE

LAKE CHAMPLAIN WEEKLY

Serving New York, Vermont & Quebec since 2000

IN NEWSPRINT & ONLINE • www.lakechamplainweekly.com

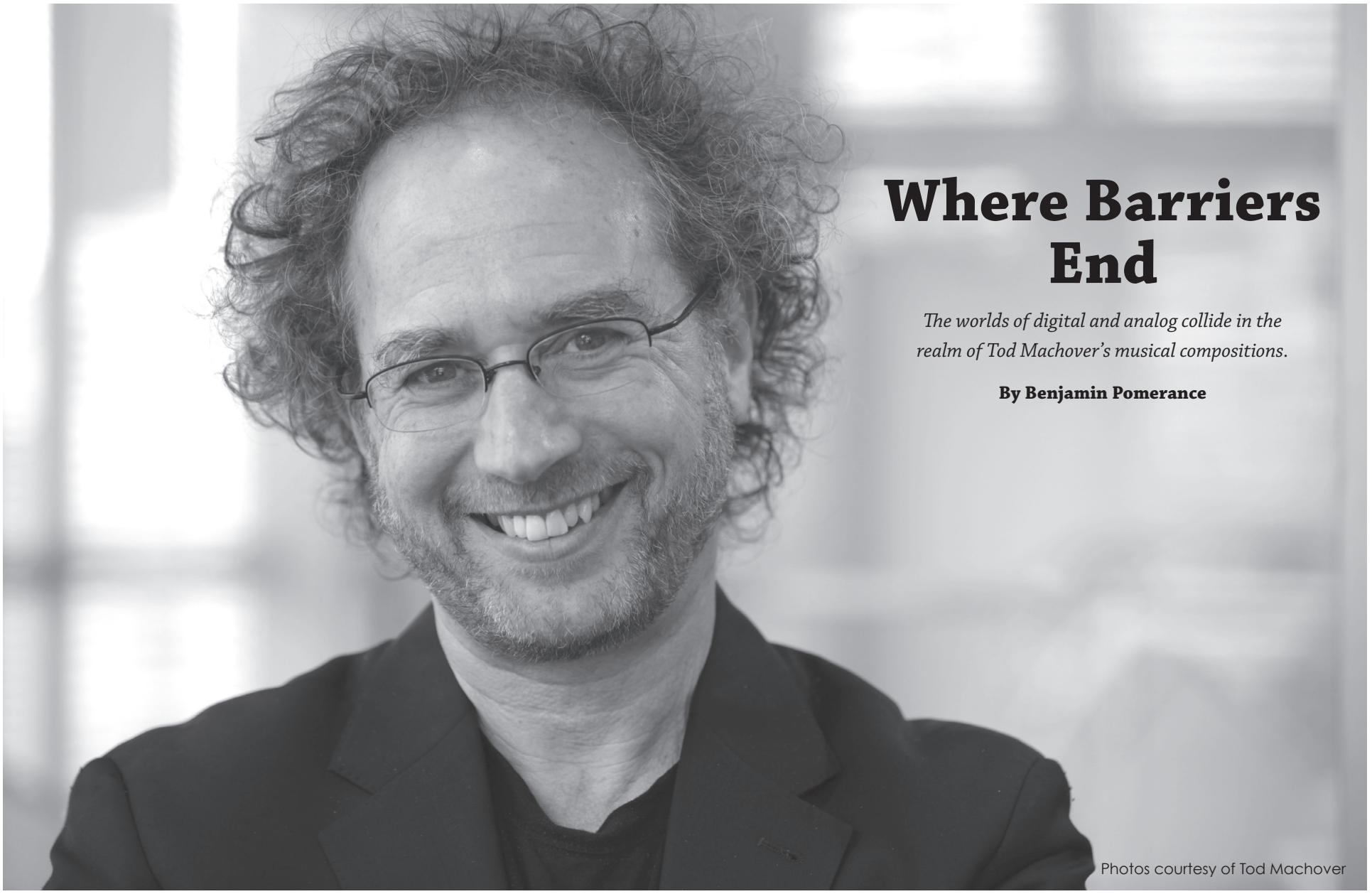
MAY 13 – MAY 19, 2015 VOLUME 15 • ISSUE 43

PRSRT STD
ECRWSS
U.S. POSTAGE PAID
PLATTSBURGH, NY
PERMIT NO. 87

POSTAL CUSTOMER

friendly TAKEOVERS

Tap Takeovers throughout the summer pave the way for the Plattsburgh Brewfest



Where Barriers End

The worlds of digital and analog collide in the realm of Tod Machover's musical compositions.

By Benjamin Pomerance

Photos courtesy of Tod Machover

At first, the entire household was Tod Machover's instrument. During those earliest days in Mount Vernon, N.Y., nothing was out of bounds. The expeditions would begin whenever his mother, a piano teacher, came to the end of a lesson. "Look around the house for something that makes an interesting sound," she would tell Machover and his fellow pupils. They'd tear around the house like bumper cars, coming back with all sorts of objects: lamps, books, pots, pans. Then they would figure out what sound the item made.

Yet there was never just one sound.

"My mother would say things like, 'What's the loudest sound you can make with it? What's the softest sound you can make? What if you pair it with another object?'" Machover remembers. "And within 10 or 15 minutes, we would make a piece of music that came from the environment. Then she would say, 'During the week, go and make a picture of what we just did.'"

He pauses, then laughs slightly. "And that," he concludes, "was how I learned that music was not just found on manuscript paper written by dead white people. Music is in our nature. It's in the world. And there are no set-in-stone boundaries to it."

Still, when he began playing the cello, the barriers came in swarms. For Machover, it was an intellectual imprisonment. He loved the instrument and its voice-like tones and the physical sensations of playing it. Yet there were too many limits. The lowest notes could sound flabby. The highest tones could become shrill and loud. And he was still hearing something in his head that the cello, despite all of its capabilities, couldn't possibly produce.

So he decided to make something new. And more than a half-century later, that desire still spurs him daily. During that time, he has designed an opera for robots (*Death and the Powers*, premiering in Monaco in 2010) and a software

package that transforms the concept of composition and invented instruments that enhance the performances of virtuosos and beginners alike. His newest composition, *De l'expérience* for organ, narrator, and technological devices, will receive its premiere in Montreal on May 16, the latest chapter for a man who has made a career out of re-writing the rule book. And he wants to keep on revising those rules again.

It's not just about music, either. To Machover, this entire lifetime of boundary vaulting carries a deeper significance. "Art should stimulate people," he explains. "But the traditional concert model can act like a sedative. People are forgetting how to listen. A more interactive model hopefully will change that trend. What we're looking for is that balance between complete anarchy and complete top-down authority."

That's where the computers come in. According to the man whom the Los Angeles Times calls "America's most wired composer," the machines increase the interactions with the people. During his years at Juilliard, he studied with electronic music pioneer Hubert Howe, who taught Machover computer programming. Developing new capacities for technological advances in the musical realm became his focus. "I realized that the software was the common language of our time," Machover states. "If you could master that, the possibilities would be tremendous."

Yet the possibilities would never involve machines taking over the concert hall entirely. That's his father's influence talking now. Machover's dad was one of the world's computer graphics pioneers, and the man instilled in the boy a lesson that he would always retain. "His whole goal was to use images that made computers intuitive to people," Machover says. "Technology was a bridge that would get you where you wanted to go. Even though you were working with a machine, you worked with the mindset of how this work would help the human."

It's a philosophy that underscores Machover's musical leaps. Take, for instance, his hyperinstruments, creations designed to help artists from Yo-Yo Ma to Prince to a child taking his or her first musical steps. Arrangements of "smart electronics" attached to traditional instruments allow the instrument itself to sense how the performer is playing. The hypercello that he made for Ma, for example, had sensors along its body and the bow, measuring factors such as bow speed, pressure, and the angle of the player to gauge the nuances in the artist's rendition.

By collecting real-time data as the artist continues playing, the instrument itself gains an understanding of where the music is going — whether it is calm or boisterous, whether the player is emphasizing certain phrases, and other "musical adjectives." Then, using this data, synthesizers kick in to produce other sounds that enhance the musician's performance.

The creations caught on quickly. Beyond Ma and Prince, Machover's hyperinstruments became tools for entertainers ranging from violinist Joshua Bell to the Los Angeles Philharmonic to the magic act of Penn and Teller. Today, the composer heads a unit at the Massachusetts Institute of Technology's Media Lab devoted to enhancing the these creations. Students under his tutelage even used the principles behind these instruments to develop the popular video games "Guitar Hero" and "Rock Band."

And while the celebrity endorsements are nice, Machover seems most enthralled with the potential that hyperinstruments offer to someone who isn't even a musician. "The same technology that lets Yo-Yo Ma leverage his skill can also let somebody who loves music but is not a professional actually participate in something," he explains. "The technology responds to what you intend to do. It senses the player's movements, the player's gestures, and reacts accordingly. This can bring people to music who otherwise might never have picked up an instrument."

He ushers this concept even further down the trail with "Toy Symphony," an endeavor aimed at giving people their first sips of music-making. A large part of this project utilizes Hyperscore, a new software package that Machover fashioned to turn all people into composers. Users begin by drawing freehand shapes and lines on the screen. The software analyzes these forms, determining a characteristic "feel" for what the artist wants to express.

From there, the program helps the user select musical building blocks — chords, motives, timbres, and more — that are color-coded to represent different emotions. Lastly, the program converts all of the components into a full composition, integrating the selected building blocks into the overall shape of the piece represented by the freehand sketches. Through this system, a person who never studied music theory for one millisecond can compose an engagingly original piece in as few as 20 minutes.

In a way, it's the ideal intersection of his parents' lessons. It's his father's desire to make processes easier using technology coupled with his mother's explorations of intuitive music-making using everyday items. And it's his own desire to transform music into a participatory democracy, too, that keeps Machover hungry for new developments. "Music is a way of connecting people," he points out. "It digs deep and it touches deep. I don't want people thinking they have to just absorb it passively. I want them to be able to be actively involved in making it."

Still, it also raises questions about whether Machover's machines have gone too far. If everyone can compose pieces in 20 minutes using Hyperscore, or if everyone can become their own symphony orchestra using a hyperinstrument, one could easily wonder if such a concept signals the death of true virtuosity. If technology can help a total amateur sound excellent, one could question whether the place of lifelong devotion necessary to become the next Beethoven or the next Yo-Yo Ma is going the way of the dinosaurs.

CONTINUED ON PAGE 6

CONTINUED FROM PAGE 5

It's a question that Machover has posed to himself often. By now, he's reached an answer that satisfies him. "What I want to do," he states, "is get people to the core of musical expression as fast as possible. I want to create an environment for them where they are able to love it. I want to have kids begging their parents for music lessons. Once they enjoy it, I think they'll be more likely to spend years and years putting in that sustained focus and concentration that you still need, regardless of the technology, to become a truly great musician."

And regardless of anyone's impression about Machover's overall impact, there's no question that the man's advancements are staggering in scale. After all, it was practically yesterday that he was fighting with his mother about The Beatles using electronic effects in their studio sessions. "Hearing 'Sgt. Pepper's Lonely Hearts Club Band' started it for me," he laughs. "That was my first big musical struggle with my mother."

"What I want to do," he states, "is get people to the core of musical expression as fast as possible. I want to create an environment for them where they are able to love it. I want to have kids begging their parents for music lessons. Once they enjoy it, I think they'll be more likely to spend years and years putting in that sustained focus and concentration that you still need, regardless of the technology, to become a truly great musician."

After hearing that album, Machover wired his cello into an amplifier, playing it like a rock guitar. From there, he started experimenting with multi-track layering on tapes. In college at Juilliard, he found himself writing pieces too complicated for anybody to want to play, including one work that required each instrument to play at a completely different speed from the other instruments around it. The level of precision that he wanted demanded a machine.

The programming lessons with Howe gave Machover some of what he wanted. Yet he truly became a man possessed when revered avant-garde composer Pierre Boulez invited him to work at the Institut de Recherche et Coordination Acoustique/Musique in Paris. Once there, Machover walked right into a sonic revolution: the dawn of the world's first large-scale digital synthesizers. Working on these machines, he recognized the doorway to what he needed, a device that could provide technological exactitude but still allow for human spontaneity.

He transferred to the Media Lab in 1985, building his hypercello for Ma during the following year. In the 29 years that followed, he's made galaxies of progress. Yet he also acknowledges being galaxies away from where all of this could end up. Someday, he predicts, humans will create new technologies that personalize a musical performance to each listener's individual psychology. Psychiatrists could form pieces that tap into certain emotional triggers for a specific client, composing certain selections to produce a certain desired response.

Perhaps it will happen. Perhaps it won't. Perhaps the next great advancement will be something completely unfathomable today. Already, the threshold has shifted dramatically in just one artist's life, from household pots and pans to an amplified cello to digital synthesizers to instruments that understand and interact with performers to software that lets everyone become a composer. And Machover is hardly out of ideas.

"We've added so much to our palette," the 61-year-old man who refuses to recognize barriers states proudly. Then, hurriedly, he finishes the statement. "But I know that there is more that we can do. Much more."

Organist Jean-Willy Kunz premieres Machover's "De l'expérience" at Montreal's Maison Symphonique on May 16 at 8 p.m. For tickets and more information, call (514) 842-9951 or visit www.osm.ca.