Closing excerpt from the book
Temperament: The Idea that Solved Music's Greatest Riddle
by Stuart Isacoff

New York pianist and composer Michael Harrison also studied with Pandit Pran Nath, and worked extensively with composer La Monte Young, becoming the first person besides Young to perform that composer's six-hour just-intonation work, *The Well-Tuned Piano*. Harrison converted a seven-foot grand piano into an instrument he calls the "harmonic piano," which affords him, with the shift of a pedal, the ability to play up to twenty-four different notes per octave. There are also devices for controlling which strings are free to vibrate sympathetically. In 1991 he used this instrument to record an album, *From Ancient Worlds*.

One cold evening at the end of November 1999, I was invited to Harrison's brownstone for a private recital. Earlier in the month, he had participated in a festival in Rome as one of four composer / pianists in the minimalist mode – a style of writing in which brief, repeating melodic fragments undergo a process of change over time, like precious stones turned slowly under a light. The other pianists on the program were Philip Glass, Terry Riley, and Charlemagne Palestine. The morning after his recital, Harrison awoke with a new tuning in mind – he calls it his "revelation tuning." It had come to him clearly like a revelation, he reported. When he returned home and tried it on his harmonic piano, he found the results extraordinary: "It creates undulating waves of pulsating sonic energy," he later related. "It is a tuning of so many beautiful sounds that every time I play it I discover new harmonic regions and feel like an explorer." The secret, he revealed, was the inclusion in the tuning of three commas – those tiny "wolf" intervals that are usually avoided as too sour. He had found a way to weave them into a unique tapestry of sound.

The private recital at his home was an opportunity for Harrison to play his new tuning for a few friends and musicians, including composer Philip Glass. Glass, an icon of contemporary music whose credits include several operas, such as *Einstein on the Beach* and *Satyagraha*, and collaborations with poet Allen Ginsberg and pop artists Paul Simon, David Byrne, and Laurie Anderson, arrived with a retinue. We all shared some wine and small talk before descending to a basement room, the locus of which was a glistening, ebony harmonic piano. The floor was strewn with cushions, and we each quickly settled onto one. Glass found a couch at the far end of the room and assumed a cross-legged position. And then, in the dim light, the music began.

It sounded like a jumble at first – a drone, or a room full of drones. Then, from within the din, high-pitched sounds seemed to rise and float toward the ceiling. The deeper Harrison played into the bass end of the instrument, the more he seemed to free an angelic choir above. Were these sympathetic vibrations? I wondered. Overtones? The clashing of strings just slightly out of tune? I couldn't tell.

Now the texture changed. The pianist's fingers engaged in a furious rhythmic interplay, and a groaning mass of sound in the low end of the piano gave birth to more phantoms above. Musical concords seemed to emerge and shake hands above the fray.

After a considerable amount of time, the music stopped. No one moved. Someone on the floor said, "My whole body is resonating." The piano was silent, but we

were all still spinning in a musical vortex. I looked at Glass on the couch; his eyes were closed. My mind wandered to the lamps in the room, the decorations on the walls….

And then I thought fleetingly of Renaissance seekers like Bartolomeo Ramos and Marsilio Ficino and Pico della Mirandola. I remembered the kabbalistic masters who described the sympathetic resonance between what is above and what is below. I contemplated the curious story of Huai Nan Tzu, his temperament theories and his ascent to heaven.

And I once again recalled the latest trend in modern physics, known as string theory, which holds that everything in the universe is composed not of atoms, but of infinitely thin vibrating strings – filaments that wriggle and oscillate incessantly in a great cosmic dance. What were once described as different elementary particles are, say physicists, really just different notes in an enormous celestial symphony.

And I thought: Perhaps Pythagoras was right after all.