

About *Oasis: Four Steps Toward an Untempered Clavier*

By Frank J. Oteri

Growing up, the two instruments that were a regular part of my life were the piano and the guitar, both of which were configured to play any music written in any key within the system of 12-tone equal temperament, but nothing else. Most people introduced to music through the 7-white/5-black key patterns on the piano or the gradually shrinking frets on the guitar unquestioningly assumed that these designs offered a complete set of intervals, never imagining that instead what it offered was actually a closed system, even though admittedly an extremely versatile one. Any other intervallic relationships that emanated from these instruments were the result of their being “out of tune” and therefore wrong. Yet, without consciously realizing that those “out of tune” intervals were just additional possibilities among an infinite number of possible intervallic combinations, I sometimes would resist tuning my instruments in order to mess around with these other tones. But I never imagined that this could and was something that musicians actually explored legitimately and systemically.

My exposure to microtonality as a bona fide aspect of music came relatively late in my musical development. While a senior in high school, I was introduced to Johnny Reinhard. He had not yet established the American Festival of Microtonal Music, but he had already amassed a bunch of scores and recordings. He introduced me to the music of composers such as Alois Hába, Ivan Wyschnegradsky, and Julian Carrillo who had subdivided 12tET into quartertones, sixth-tones and beyond. I was intrigued. Then he mentioned others who eschewed 12 altogether and divided the octave into 19 and 31 equal tones, then composers like Harry Partch who had abandoned equal divisions altogether, basing all relationships between pitches on proportional ratios (so-called “just intonation”) and as a result got harmonies that seemed somehow richer. (But since the distances between such notes was not equal, melodies and harmonies set in a specific key could not be transposed to every key; some keys were more “in tune,” but others were terribly out.) Finally he told me that 12-tone equal temperament was not normative in many parts of the world and that it was a relatively recent phenomenon in history, a compromise that had been accepted in order to be able to more easily transpose music into different keys. Alternative approaches to tuning were not merely a fringe activity by a group of experimentalists, but entire musical traditions—including those of the Middle East, India, China, and Africa--were conceived for scales containing other intervals that could not be adequately represented using a 12-tone equal tempered system. In addition, European music during the Medieval, Renaissance, and Baroque periods was also conceived in other, unequal, tuning systems such as Pythagorean, Mean-Tone and Well Temperament. Therefore when people nowadays performed music from those eras in 12-tone equal temperament, it was, in fact, out of tune. Perhaps the most startling thing he claimed was that Johann Sebastian Bach’s famous compendium of preludes and fugues in every key, *The Well Tempered Clavier*, which most music history books declared to be a demonstration of the superiority of 12-tone equal temperament, had actually been conceived for an unequal temperament, one in which all of the keys sounded good but were each slightly different from one another. If all the keys sounded exactly the same, Reinhard argued, what would be the point in writing different music for each of them? All of this new information blew my mind and permanently changed the way I think about music to this day.

Eager to create my own music using other intervals, I arranged to spend a summer tinkering on two Motorola scalatrons that microtonal composer Joel Mandelbaum kept in his office at the music department of Queens College. The most significant result from those visits was *In Watermelon Sugar*, a 31tET opera that has still yet to be performed. I needed to find something more practical. I bought a Korg Mono-Poly, a four-voice polyphonic synthesizer, and its various knobs allowed me some rudimentary detuning options. One result was a somewhat silly little improvisatory piece I performed on one of the early AFMM concerts called *π a la Modal*, which was built around block chords featuring a perfect fifth sharpened into the interval of $\pi/2$. But by the late 1980s, the second generation of the then ubiquitous Yamaha DX7 digital synthesizer offered a variety of micro-tuning options, though it was out of my price range. Luckily they then released a FM tone generator called the TX81Z which featured all the timbres and tuning options of the DX7-2 at a fraction of the price and which could be triggered by any digital synthesizer via a MIDI cable. So I got one!

Playing quartertones and eighth-tones on the TX81Z via a Casio CZ1 I hooked up to it turned out not to be terribly effective since quartertones required a stretch of two octaves and the eighth-tones required a stretch of four. But there was much to be explored in other scales featured on the machine-- "Pure(major)" (a basic 3-limit just intonation), "Pure(minor)," "Mean tone" (which was 1/4-comma), "Pythagorean," "Werckmeister" (a temperament described in a 1691 treatise which Reinhard claimed was the tuning in which J.S. Bach conceived his *Well-Tempered Clavier*), "Kirnberger," and "Valotti&young." I played through some of the easier Preludes and Fugues of WTC in Werckmeister, hearing for the very first time the intervals I imagined Bach had heard, albeit on cheesy '80s synth timbres. Then I got a crazy idea. What if I, like Bach, were to create music in different keys using one of these unequal temperaments, too. But rather than using a temperament in which every key was slightly different though still "in tune," I used a temperament in which every key was completely different and most were actually "out of tune."

I eventually created *Oasis: Four Steps Toward an Untempered Clavier* for which the TX81Z is set to the "Pure(major)" micro-tuning in C, but whose four movements are in the keys of Bb, D, Eb, and then finally C. The key of Bb has a pure third but the fifth is about a fifth of a semitone flatter than what most people are used to hearing. However, the minor seventh in this key is extremely close to a pure seventh in just intonation which is a wonderful interval that does not exist at all in 12tET. So I created "Somewhere Else," a piece in Bb mixolydian that mostly avoids the flat fifth but totally exploits that gloriously flat seventh. The key of D features that same overly flat fifth and a really flat 3rd which is almost halfway between major and minor; it's just sharp enough to be more perceptible as major than as minor. For "Staking Territory," I totally revel in both of these off intervals as well as some others. Though there a few accidentals, the music is predominantly cast in an eighth-note scale that is simultaneous major and mixolydian--there's both a minor and a major seventh and the narrow distance between them (a mere 7/10ths of a semitone) is frequently highlighted. Eb is really out there, so much so that diatonic music seemed mostly unbelievable in it, so I went all out for "Almost Lost," a pentatonic piece celebrating kitschy exotica that showcases some of the most unusual intervals. Finally, after all the howling of all those unstable intervals (in the Baroque era, the bad intervals in unequal temperament were described as "wolves"), I felt I needed to resolve everything in a key that most people would find

pleasant and in tune, so the last movement, “Ever After,” is in C. The primary theme here is a variation on the first movement’s theme, but now it sounds much more strident although each of the previous keys make one last final appearance at the very end.

When I first conceived of this music, I was hoping to create a total of 12 movements, one for each key, that could be played by a keyboard soloist a la WTC. But instead of creating additional pieces, I kept adding more counterpoint to the four I had already composed. It eventually became too unwieldy for my two hands. So for its first public performance on an AFMM concert at the Anita Shapolsky Gallery in New York City on October 21, 1989, I brought along my then computer--a clunky Apple IIGS--and used that to trigger the TX81Z, via Pyware Music Writer software, while in real time I operated a Roland Boss DSD2 digital delay box which added additional canonic layers. But I found the result ultimately unsatisfactory and I shelved the piece for 25 years. In fact, after one additional microtonal experiment, *Just Salsa*, an 11-limit salsa band piece in which I performed on the CZ1 triggering TX81Z as part of a group of 10 musicians on (mostly) acoustic instruments, I shelved the TX81Z and did not create another microtonal piece for over a decade. Since 2002, however, I returned to microtonal composition and have created a quartertone wind quintet (*circles mostly in wood*) that has been performed by Pentasonic Winds and Sylvan Winds, a quartertone saxophone quartet (*Fair and Balanced*) that has been recorded by the PRISM Quartet, a sixth-tone rock-band piece (*Imagined Overtures*) that has been recorded by the Los Angeles Electric 8, and *Spurl*, a solo clarinet piece using an octatonic scale in 13-limit just intonation that Michiyo Suzuki has mastered. Though a few years ago I purchased a H-Pi Tonal Plexus, a microtonal digital synthesizer designed by Aaron Andrew Hunt which features a 211 key-to-the-octave layout, and I fool around with it from time to time, I no longer find it necessary to use electronic instruments in order to realize microtonal music.

So when Mathew Rosenblum told me about his plans to organize a microtonal festival in Pittsburgh and that he had invited the Ray-Kallay duo, my first thought when he asked me what piece of mine might be suitable was to rework *Oasis* into a four-hand keyboard piece that they could perform either on a retuned piano or harpsichord. While this music could certainly be performed this way, during the revision process I tracked down a Roland UM One USB-MIDI interface that enables performers on current day electronic keyboards to access the timbres and micro-tunings of the Yamaha 81Z and after turning on that old machine for the first time in the 21st century, I once again fell in love with its otherworldly sounds. Now, looking back on those four movements I composed a quarter century ago, they seem just as much an exploration of the TX81Z’s preset timbre possibilities as they are about exploring the strange intervals that occur when tuning to a C major just intonation scale and playing in other keys. Reworking this piece I first conceived of half a lifetime ago (I was 25 in 1989 and 50 in 2014) has been a fascinating process of personal archeology. On the morning of October 21, 2014, while I was listening to the Sibelius playback for one of the movements of *Oasis* I had just begun re-engraving, I found the program for the concert on which it premiered exactly 25 years earlier. I would like to thank my wife, Trudy Chan, a pianist and harpsichordist, who diligently edited this music after I finished futzing with it in order to help make an edition that is finally playable by other musicians.

(December 2014)