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DRUMS & DRONES



URSULA SCHERRER

still from *Drone State of Mind*, v. 1 (2013)

The Drums and Drones project initially came about from inspiration by La Monte Young and Marian Zazeela's Dream House installation in TriBeCa, NYC. I had spent almost a year and a half volunteering there as a "monitor," someone who minded the installation and greeted visitors. The duration of my shift, about 4-5 hours, was spent soaking in the immense sound and absorbed in the magenta lights. I would also read up on the historical background of La Monte, Marian, and their cohorts on the early NYC experimental art scene, in addition to learning about the Just Intonation tuning theory. The more I sat with the installation, the subtleties of its finely tuned sound and light vibrations began to reveal themselves. I was mesmerized by the power of this physiological experience.

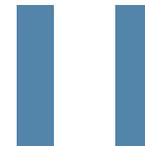


La Monte Young Marian Zazeela, Dream House: Sound and Light Environment, 1993–present; MELA Foundation, 275 Church Street, 3rd Floor, New York City. Photo © Marian Zazeela 1993



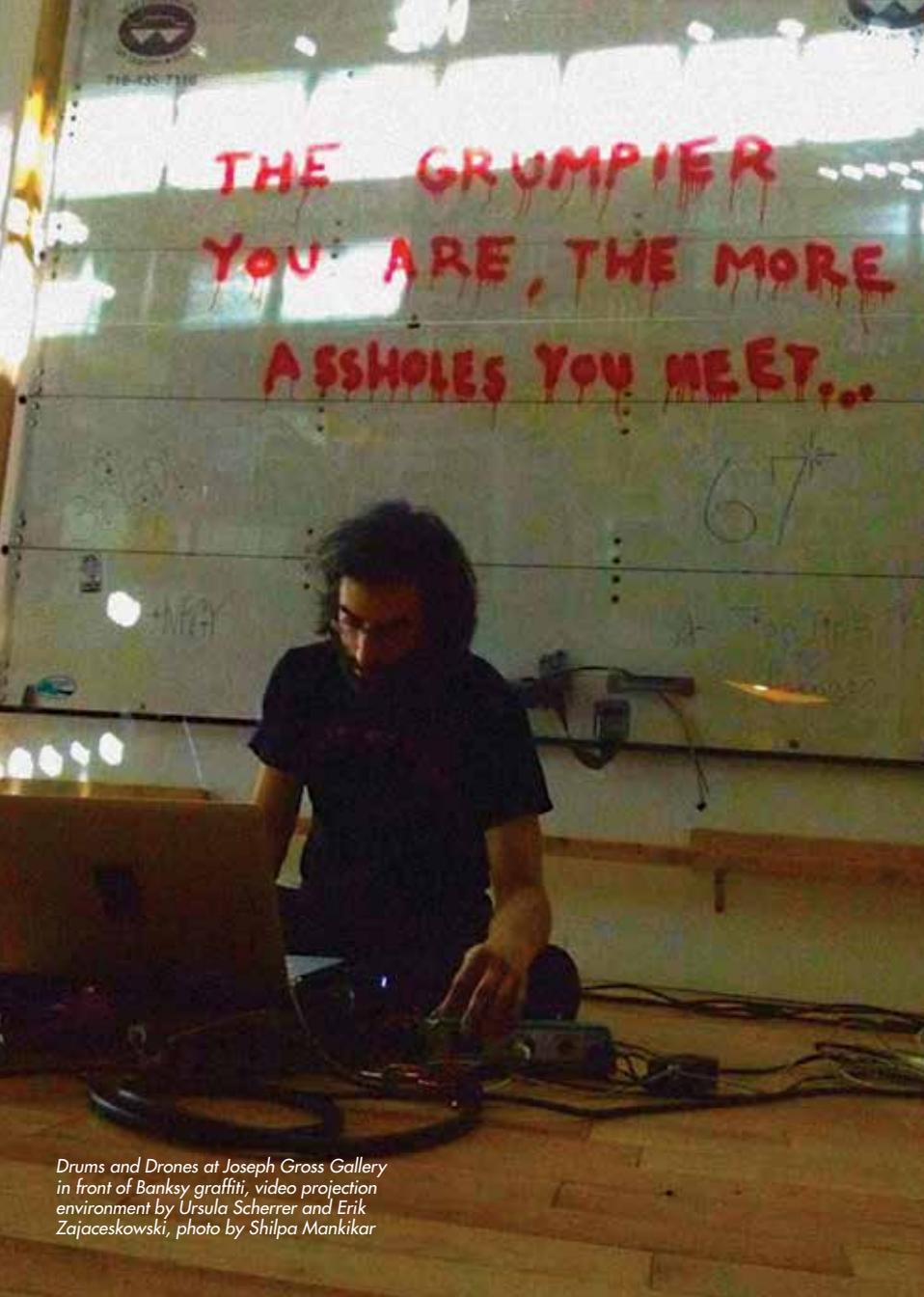
I sit and I listen; the physicality in wave relationships washes over me; thoughts and emotions, in relationship with one another, come into balance in their place of being. In time, settling and subduing, the periodicity of the tones steadies the vibrational impulses; I can see beyond what I identify as it to a point beyond identification, seeing. I gain perception from exposure, and not being able to experience all at once, my piece is it as it is a part of the entirety itself. From a multitude, one emerges, and from one, a multitude... Perceptibility expands in its stillness, as expression, complete in itself. All I have to do is listen...

DRUMS & DRONES



DESIREE HOLMAN

Aura, Annie Besant (detail)
painting used for *Drums & Drones II* cover



Drums and Drones at Joseph Gross Gallery in front of Banksy graffiti, video projection environment by Ursula Scherrer and Erik Zajackowski, photo by Shilpa Mankikar

Simply put, Drums & Drones aims to 'go inside' the resonance of a drum. What does this mean? Well, to start with, the sound of a drum is actually quite complex: its tonal make-up consists of numerous tones, not just a single tone. Given this, if we were to take an 'aural snapshot' of the sound of a drum, and zoom in on that snapshot, we can then pick apart and isolate some of the many individual frequencies that comprise the overall resonance of the drum. The method described here is a key component to many Drums & Drones compositions. To go further, another integral facet of Drums & Drones is that it is sonically organized according to the Just Intonation tuning system. Just Intonation is often referred to as 'nature's tuning system' as it is based on a naturally occurring acoustic phenomenon known as the overtone series. Without going into too much detail here (see the essay *On Just Intonation* included in this collection), what distinguishes Just Intonation from 'standard' Western tuning (12 tone equal temperament) is that all of the tones in JI are based on whole-number relationships. In 12tet, intervallic relationships are based on irrational numbers, namely the square root of 12. Because of the clean cyclical vibrational relationships found in JI, a particular emphasis is placed on sound as the purely physical element it is.

63; on a few pieces some 'addition' and 'subtraction' tones are boosted for emphasis. Delay and reverb were used as ways of sustaining the resonance of the drum. Compression was used as a way to bring the presence of the drum's resonance further to the forefront.

MEDITATIVE LISTENING

As mentioned previously, this music is deeply inspired by meditative listening. Meditation is a slippery thing to define because it exists in a place of the immaterial: it has no form and it has no features; it has attributes but none of them express the totality of the experience itself. As for the experience, it comes about as a process, and since sound is our medium here, listening is our main sensory entry point. Listening happens over time, and as time progresses the listening changes, that is to say: the subjective experience of listening begins to change. Through the listening process, the listener grows aware of the process of listening: what one is thinking, what one is thinking in relation to the music, and what the music reflects in one's thinking. Ultimately, over time, as the listener grows increasingly absorbed in the music and thoughts gradually dissipate, awareness of time itself may disappear, facilitated by the vibrational

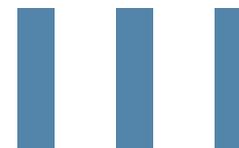
energy inherent in this music. **In much the same way that this music goes 'inside the sound of the drum' a similar experience is reflected in the listener through the process of listening.**

In constructing these pieces, a fundamental aspect I kept in mind was to not listen necessarily for the tones themselves, but for how the tones combine in space and for how the tones combine in the resonance of my head. By adopting this perspective, I am not so much listening to the 'thing' itself, though it is the foremost integral part, but, rather, emphasizing the subtle resonances that exist as a byproduct of the 'thing.'

In listening to this music, I encourage the listener to shift perspective from the material object of sound to the resonance of that sound in the space of the room and in the space of one's ear canal and head; ultimately, as this resonance transitions to the subjective experience of sound, a distinction can be made between the sound, the process of listening, and the listener.



DRUMS & DRONES



NATASHA FRISCH

Don't Fuck'n Touch My Stuff 2003
photograph used for *Drums & Drones III* cover

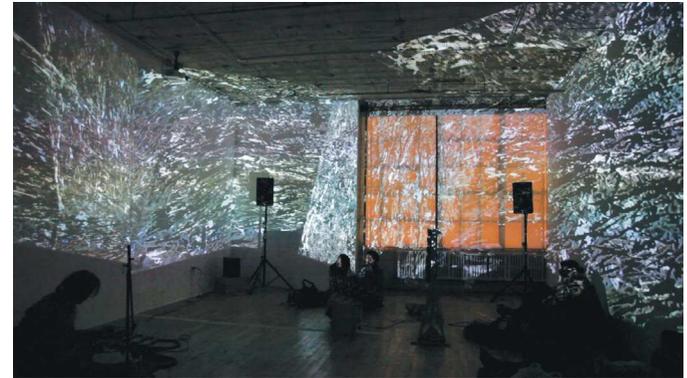
Perhaps it took this long for me to develop the repertoire to a point where it could stand on its own in a purely acoustic format.



The Drums and Drones snare drum adorned with lights

As a complement to this aspect of sonic subtlety is another integral part of the Drums and Drones methodology: its approach to listening. Drums and Drones emphasizes the process of listening almost as much as listening itself: the focus shifts from what we are hearing to how we are hearing. For example, in the music of La Monte Young, who's work is a prime influence on Drums and Drones, a composition may contain no linear development; a piece may sound the same five seconds from now, five hours, five days, years, etc... But,

...the music is 'sculpted' in such a way that it yields a continually shifting perception of a seemingly endless multitude of sides, and, though the piece itself never changes, the relationship of the listener to the artwork is always changing. In addition, the longer a listener sits with the music, the more the process of hearing begins to open to reveal perceptively new sonic elements that were always already there. The traditional roles of subject (listener) and object (artwork) are in affect reversed.



Drums and Drones at Studio 10 gallery, video projection environment by Ursula Scherrer

point, I lightly rest the remaining fingers at specific nodal points along the radius of the drumhead to get progressively higher harmonics (similar to how a guitarist presses fingers on a string when fretting harmonics).

Another important part of this method is the placement of where the drumstick strikes the head: striking closer to the edge yields higher partials and closer towards the center yields lower ones. Compositionally, the pitch set I chose for this piece contained harmonics in a relationship of 6:7:8:9:10; these pitches exist very close to each other on the drumhead and provide for a simple pentatonic scale. In performing this piece, I used a chopstick instead of a traditional drumstick as it helps produce a timbre favoring the drum's upper partials.

The opening of this 'song' is about breath and spaciousness—the space in between the hits in conjunction with the resonant harmonics function as pointillistic markers framing emptiness. In performing this piece, my inhalations and exhalations of breath determined the rate of playing. As the song progresses, a free flowing melody begins to take shape and the interrelationship between the hits develops greater meaning. The ending brings a rhythmic and melodic resolution, with a slightly more animated and energized breath than was at the start.

TRACK 2—BRIDGE DRUM

As an etude, Bridge Drum sets out to expand on the method of the previous track: whereas Melody Drum Drone, v. 4 utilizes harmonics to establish melody, Bridge Drum uses harmonics to explore arpeggiation. The arpeggiation and its motion gives the piece a sense of 'verticality' as the pitch content ascends and descends through the drum's harmonic scale. This 'verticality' has many connotations: the rise and fall of breath, the increase and decrease of energy flow, a going out and coming in, opening and closing, low to hi and hi to low. Again, finger placement of my left hand and stick placement with my right hand determine the harmonic pitch. The faster series of stick strokes that happen towards the end are achieved through a very specific hand/finger technique.

TRACK 3—GRAIN DRUM

There are many Drums and Drones pieces, both recorded and performed live, that are based on a drum roll. The drum roll is a drummer's ability to create a 'long tone' on the instrument. String players have the bow, horn players have the breath, drummers have the roll. Actually, a roll is made up of a high-density



**VIDEO
STILLS**

ting. Functioning in a similarly way as the sound does in the music, these visual 'motion paintings' emphasize an illusory perception of light and a malleable architecture of shape. For the listener/viewer, the actions of listening and viewing are favored in their place as subjective processes.

It was from the many heightened experiences of performing with two video artists, Ursula Scherrer and Erik Zajaceskowski, that the motivation came to release the first Drums and Drones album with an accompanying DVD of videos for each track. The following stills are an edited selection from these videos.

URSULA SCHERRER

Ursula Scherrer is a Swiss artist living in New York City. Her aesthetic training began with dance, transitioned to choreography and expanded to photography, video, text, mixed media and performance art. With Drums and Drones, her work has been shown at RED-CAT (Los Angeles), X Avant Festival (Toronto), Broad Art

Museum (Michigan), Prava Festival (Maryland), Studio 10 (NYC), Loop Festival (Spain), and Phill Niblock's Experimental Intermedia (NYC), among more.

ERIK ZAJACESKOWSKI

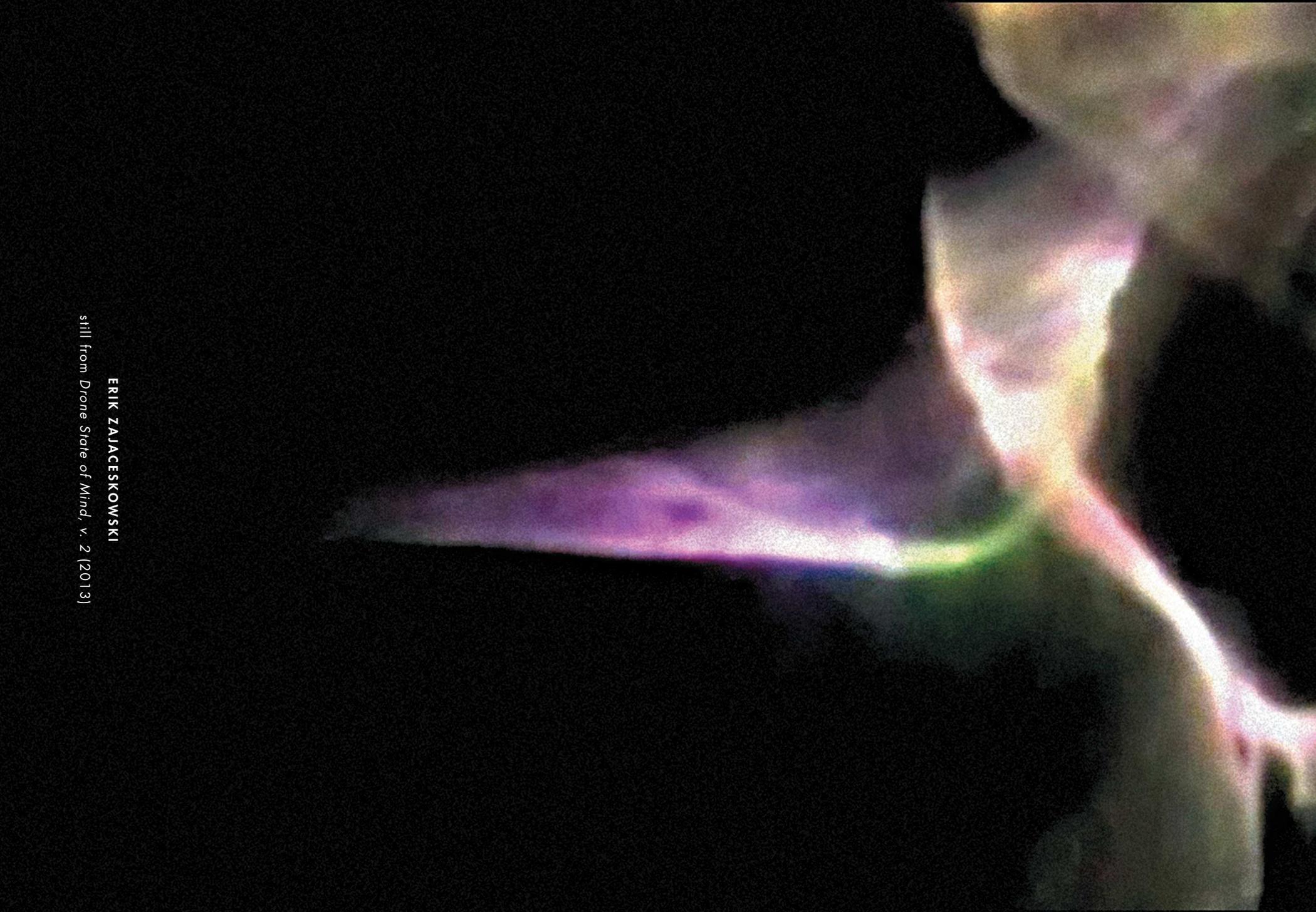
Brooklyn based video artist Erik Zajaceskowski has been a key figure of his community's arts scene since the late '90s. He was the co-founder of two highly influential Brooklyn art and performance spaces: Mighty Robot and Secret Project Robot, and continues to run SPR along with venues Flowers For All Occasions and Happy Fun Hideaway. Erik's stunning video work has captivated audiences at countless art events, rock shows, experimental concerts, and parties for the past two decades. Without him, the Brooklyn arts scene would not be what it is, and its creative boundaries not as pushed.



URSULA SCHERRER
still from *Aum Drone* (2013)



URSULA SCHERRER
still from *Drum Roll Drone* (2013)



ERIK ZAJACESKOWSKI

still from *Drone State of Mind*, v. 2 (2013)

› ESSAY ‹

**ON JUST
INTONATION**

URSULA SCHERRER

still from *Feedback Drone* (2013)

world's history but there is one that is derived according to the organic acoustics of Nature: Just Intonation.

Just Intonation is a tuning system based on the naturally occurring acoustic phenomenon known as harmonics. To help in conceptualizing harmonics, they can be thought of as a form of sonic DNA. In the same way that biological DNA determines biological characteristics, harmonics determine acoustic ones. Harmonics are a sequence of pitches that are present in almost every sound. They are subtle and exist as the subsidiary tones relative to the dominant tone of a sound (here it is being acknowledged that a 'singular unit of sound' is actually, in almost all cases, a composite of a dominant tone plus an x-amount of subsidiary tones.) Each sound has its own unique harmonic constitution, and this is what distinguishes one sound from another.

An essential detail with harmonics is that they exist according to a very specific structure known as the harmonic series. The distance between pitches in the harmonic series is always the same no matter the sound. What distinguishes sounds from one another is which pitches of the harmonic series are most prevalent. Dif-

ferent sounds are made up of different harmonics of the series. Yet, despite differences in harmonic constitution, the underlying structure of the harmonic series is always the same. This structure of the harmonic series is the basis for the tuning system of Just Intonation.

The cool thing about harmonics which is not the case in any other tuning system is that their vibrational patterns interlock perfectly. They connect like pieces of a puzzle, or fit together like Russian matryoshka dolls. Each individual harmonic is physically interrelated to each, and each one is implied within the physical vibration of the other. Because of this, there is a seamless unity between individual harmonics and how they function together to form a larger sonic totality. The relationship between pitches here is very exact and derived from a very simple principle: from one singular vibration an infinitude multitude of pitches can be generated. Rather than adding pitches to a singular vibration to obtain a 'musical scale', it is the inverse that happens here: by dividing a singular vibration into smaller whole number pieces there is the resultant procreation of different pitches. It is precisely because all pitches in Just Intonation interlock in this way—a vast multitude continually referring back to a singular point of origin—that they can pro-

place. Perhaps the 7th harmonic starts to get stronger in the upper octaves, considering that 49 is the 7th harmonic of 7? Following this pattern for my compositions, I do use the 3rd harmonic in the lower register but rarely in the mid and upper ones.

In working with this scale in the post-recording mixing process, the use of panning greatly helped to provide spatial clarity. In the left channel would be the harmonics of 7 and its derivations of 21 and 49; in the right channel would be 9 and its derivations of 27 and 81. 63 and 1 would often be panned up the middle. This kept the pitches distinct as well as polyphonically organized. The left channel would be a 'chord' based on the 7th harmonic, and the right channel would be a 'chord' based on 9. There are also moments when addition tones would be explicitly boosted in the mix. These often fell in a range between 103 and 119. Since the majority of Drums and Drones pieces are performed on a snare drum, the bulk of the material is eq'd accordingly. A snare has particular eq characteristics and my mixes would both play into and smooth out the tones of the drum. For example, the 5th harmonic is very strong in the resonance of the drum I used, and I found it would interfere with much of the harmony I was look-

ing to achieve. I would temper this by notching down that frequency and gently bringing in its upper expression as the 81st harmonic (think: 81 vs. 80). Most of the drum's strongest resonant tones would be in its mid range between 480hz and 1080hz. The higher octave of this range would be prominent in places, too. After about 3840Hz the drum would be in its high end and more of the short notes coming from the attack of the stick (in contrast to a sustained ring of the drumhead) would be found in that register.

CONCLUSION

Inspired by La Monte Young and the power of Just Intonation, the Drums and Drones project was developed as a way to explore and bring forth the subtle resonances of a drum. Hearing the drum in its glorious complexity is what made me want to investigate it further. In the 'sound of a drum' I heard a whole universe of individual tones. With the method of Just Intonation I was able to explore the details of drum resonance according to the principles of natural acoustics. Through harmonics, a singular drumhead is transformed into an instrument capable of playing distinct melodies, and

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