PERCUSSIVE NOTES

Vol. 61, No.3, June 2023

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Contents

PERCUSSIVE NOTES

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Welcome to the June issue of *Percussive Notes*. It is remarkable that we are already nearly through the first half of 2023. The PAS office and Board of Directors have faced a challenging first two quarters of 2023 responding to the fallout of the flood of the Rhythm! Discovery Center on December 26, 2022. The flood damage resulted in quick action of the staff and months of careful packing and storage of all museum artifacts, and a relocation of the PAS offices. I'm happy to report that with the relentless effort of our amazing staff, the Percussive Arts Society has persevered and is poised to welcome change and growth regarding the next steps for R!DC and the future of our organization.

While the start of the summer is a great time to rest and recharge, it is also a terrific time to revisit many of the wonderful articles and resources that *Percussive Notes* provides our membership through *pas.org*. This June issue is full of diverse topics dedicated to personal development, like stick control for drum set and Blake Tyson's article on "The Illusion of Sustain on Marimba," as well as culturally fascinating dives into rudiments and modern folk music from Ancient Greece, and an introduction of the "Flower-drum Lantern" by Wna Ning Chen. Additionally, there is a terrific article by Aurica Rising on maintaining healthy habits as a student that you will want to bookmark to share with all of your students at the beginning of the semester. We all encounter students who struggle with the rigor of being a music major, and Aurica lays out some terrific strategies to help students manage their time, stay productive in the practice room, and balance school and life.

It was wonderful to see so many PAS programs and Days of Percussion throughout the Spring. We are grateful for the chapter presidents and local leadership who go above and beyond to provide enriching experiences for percussionists throughout the world. As you read this issue, the PAS Board of Directors will be wrapping up an annual in-person summit in Indianapolis to focus efforts on long- and short-term planning of our organization, as well as continue to dial in preparation for PASIC 2023. We are very excited about the collection of world-class talent that is in place to present an extraordinary convention in November. Special thanks to the committee members, the committee chairs, and the Executive Committee for their vital role in reviewing a large volume of applications and helping curate a diverse, educational, and inspirational PASIC.

PAS has a few initiatives that we would like to encourage our members to share with their local communities. The new studio membership and the group membership (both listed below) are terrific opportunities for more teachers and young students to enjoy the benefits of a PAS membership at a tremendous value. Both programs provide an Individual All-Access membership for the teacher, 20 student group memberships, a complimentary masterclass, membership to your local PAS chapter, and eligibility to enter competitions and apply for scholarships.

Studio Membership for private studios serving K–12 students. For private studio instructors who work with students through the 12th grade.

Group Membership for schools and non-profit organizations serving K–12 students. For group instructors and band directors who work with students through the 12th grade.

With the all-access pass for the teacher valued at $120, a masterclass for the students, plus the individual student memberships, and additional group discounts for PASIC registration, the benefits far exceed the $250 cost of the membership. I'd like to invite each of you to set a goal of reaching out to five schools or private studios in your area to encourage them to take advantage of these programs!

Lastly, applications for several of the PASIC scholarships are due by July 15. Please encourage students to apply for scholarships and enter all of the in-person performance and competition opportunities PAS has to offer. The more that students participate at PASIC, the more enriching experiences they will remember, and this, in turn, will cultivate the next generation of what I call "PAS-lifers."

I wish everyone a wonderful summer full of whatever makes you happy, time with family and friends, and, most importantly, great health.

Much respect,
Julie Davila

Organizing the Symphonic Percussion Section

The unseen work of the Principal Percussionist

By Malcolm Lim

In addition to performing difficult and exposed music parts, the job of the Principal Percussionist involves organizing the percussion section: determining the extras to be hired, compiling instrument lists, ensuring unusual instrument requests will be available for the concert, plotting the map of where instruments go on stage, making instrument assignment choices, ensuring assigned music is available on time, communicating "doubling" requirements, directing the set up and tear down of instruments on stage, keeping the instrument storage room organized, maintaining the working condition of instruments, and, above all, communicating with the personnel manager, the production manager, the conductor, the Principal Timpanist, and members of the percussion team.

I have put some thoughts together to potentially help those new to the job and to begin a conversation with those with more experience than myself. I have found that the organizational side of the job is not discussed very much in our music education, and online materials are scarce. Organizing is less sexy than performing; in terms of time spent, I would say the job is two-thirds organizing and one-third practicing and performing (others have suggested it is more like four-fifths to one-fifth). The ability of a potential Principal Percussionist to organize is not assessed as part of the audition process, but this skill is essential for the smooth functioning of the percussion section. I believe this skill can be developed, and it is for this reason that I offer these thoughts based on my work as Acting Principal Percussion for the the 2021–22 and 2022–23 seasons of the Calgary Philharmonic Orchestra.

START WITH A SYSTEM

Busy weeks at the Calgary Philharmonic might include three different

Figure 1: Spreadsheet for Organizing the Percussion Section

	B	C	D	E	F	G	H	I	J	K	L	M
1	Concert	perc requested	perc confirmed	Request Music from librarian		Music out date	Ist rehearsal	Inst list	Assign. sent	Map	Doubling Sent	Music Out
3	FALL			(2 weeks)	(1 week)							
4	FC1 Brass Fanfares		T+2 (RS)			24-Aug	7-Sep	done	done	done	done	done
5	FC04 Tom Jackson		T +2 (ND)	NOW	1Sept	7-Sep	21-Sep	done	done	done	done	done
6	PO1 Broadway		T+2 (TH)	NOW	3Sept	10-Sep	24-Sep	done	done	done	done	done
7	MT07 Napi and the Rock		T+1	NOW	7Sept	14-Sep	28-Sep	done	N/A	done	done	done
8	FC03 Classical Xmas show		T+3 (SB, ND)	7Sept	14Sept	21-Sep	5-Oct	done	done	done	done	done
9	SP25 Haydn with Hirzer		T+3 (SB, ND)	ASAP	ASAP	29-Sep	13-Oct	done	done	done	done	done
10	FC04B Tom Jackson		T+1	30-Oct	6-Oct	13-Oct	27-Oct	done	N/A	done	done	N/A
11	PO2 Mike Hope		T+1	8-Oct	15-Oct	22-Oct	5-Nov	done	N/A	done	done	N/A
12	FC05 Brahms 2 (Fung)		T+1	14-Oct	20-Oct	27-Oct	10-Nov	done	N/A	N/A	done	N/A
13	ED02 Rocky Mtn Fairytales		2p (SB)	19-Oct	26-Oct	2-Nov	16-Nov		done	done	done	done
14												
15	WINTER											
16												
17	SS03 Nutcracker		T+1			26-Nov	10-Dec	done	N/A	done	done	N/A
18	STV		T + 2			17-Dec	31-Dec	N/A	N/A	N/A	N/A	N/A

programs, so I developed a system using a spreadsheet that helped me to make sure all tasks were completed on time. The column headings I use are: *Concerts, Percussionists, Request Music from Librarian, Music Due Date, First Rehearsal Date, Instrument/Equipment List, Assignments, Map, Doubling Sent, Music Out, Map/Instrument Sent, Prepare Trunk for Move, Cleanup Storage* (see Figure 1). This is a methodical checklist, and I tick off the items when completed. I like using Google Sheets so that I can access the information easily on my iPhone anywhere. I use the "Freeze" function on the headings row so that when I scroll down, the headings are still within view. What follows is an explanation of each column heading; related issues are also discussed.

Concerts: I type in the code for the concert: e.g., FC1 – Brass Fanfares.

Percussionists: I enter something like T+2 (timpani and 2 percussionists); this means we must hire one other percussionist. I might have a column for subs requested, and then one for subs confirmed. I will use our online OPAS software to see if we need to hire a drum set player. I listen to the music on a particular program if I'm not familiar with it to help me decide which subs I should hire. At times, I will confer with the Principal Timpanist and the personnel manager on who to hire.

Request Music from Librarian, **Music Out Date, First Rehearsal**: Since the music needs to be assigned and ready for pick up by the percussion section two weeks before the first rehearsal (according to the CPO Collective Bargaining Agreement), I go through the calendar and mark down the dates for the first rehearsal for each program. Working backwards, I write down the deadline two weeks before that first rehearsal: the "Music Out Date." I work further backwards and write down dates one week and two weeks before the deadline to prompt me to see if any of the music might be available for percussion. If the music is particularly challenging, I might request that a special effort be made by the music librarian to get it out sooner.

Instrument List: I have separate spreadsheets for each show. I usually start by going through the music and compiling a list of instruments needed. I will separate (1) the equipment that the crew would need to take care of (the big stuff like bass drum, mallet instruments, the trunk where the small gear lives) and (2) the equipment that I would take care of (included inside the trunk or placed on top). I list every instrument that a particular program requires. If people need to bring extra snare or cymbal stands, I specify this in the list. I also list the number of music stands required, and anything else, such as chairs and stools. I compile the instrument list while working on the part assignments and the map; all three processes affect each other. I always double check the list at the end because inevitably I could forget something, and it is always something big (tam tam or chimes). See Figure 2.

For certain pieces like Chin's "Graffiti," unusual instruments and mallets are required, so then I confer with the production manager about procurement; we rented gear such as a dozen tuned gongs and two chromatic octaves of almglocken from Timpano-Percussion in Montreal. We also had to look for bass chimes; it turned out our Associate Conductor drove up to Edmonton to bring them down (thanks Edmonton Symphony Orchestra). When the package of gongs and almglocken arrived, we put the frames together and figured out where everything had to live. All of this takes time.

Figure 2: Instrument List (separating what the crew needs to take care of and what I would take care of)

A	B	C	D
Instruments (crew)		*(instruments we take care of)*	
big trunk		mark tree	
drumset		cowbell	
small tam tam		sus x 4	
large tam tam		china on stand	
djeme on stand		crash a2 x 2	
xylophone		bulb horn	
glockenspiel (bells)		siren	
vibes		triangle	
timbales		(at timpani the following)	
congas		train whistle	
wind machine		vibraslap	
bass drum (calf on wheels)		maracas	
crotales (lower octave)		tamborine	
chimes (tubular bells)		triangle	
Marimba			
1 chair			
10 stands			
1stool			

Figure 3: Our venerable Big Trunk — still functional

Assignments: Once I know who is hired for a program, and once the music is in, I start working on the part assignments on a spreadsheet. I do this in conjunction with mapping out how the section will be laid out because it helps me envision how each player will move from one instrument to another. I work piece by piece, or movement by movement, laying out what each percussionist will do. I try to assign according to a player's strengths. Sometimes, I give players a choice: "Would you prefer to play snare drum or xylophone for this piece?" It makes things a bit more democratic and increases the sense of autonomy in the section.

Part assignments for major standard works have been prepared on Percussion Orchestrations (*www.percorch.com*). I use Raynor Carroll's "Symphonic Repertoire Guide for Timpani and Percussion." The challenge is usually for shows where there is not a budget to hire an extra player, but the same parts must be covered, as far as possible. We might even have to "double" (including the timpanist); in the Collective Bargaining Agreement (CBA), percussionists and timpanists get an increase in pay called a "double" or "triple"

if they need to play across any of the following categories: percussion (drums and auxiliary); mallets; drum set; timpani. In this case, I must know what the timpanist is doing too, so I take photos of that music ahead of time to refer to. For dense scores with lots of instrument changes (e.g., *Harry Potter 3*), I resort to breakdown by bar number (see Figure 4).

Sometimes, composers write instrument indications that are not clear. In this case, I either try to communicate with the conductor or the composer (if that person is alive). The office staff have been extremely helpful in putting me in touch with current composers.

After emailing a copy of my assignment spreadsheet to everyone, I will tick this box.

Map: The map is important for helping me see if the part assignments work out. I put every instrument that is required for the program on the map, also noting where the music and trap stands are (the number of music stands required is sent to the production manager so they can have an idea of what we need). The map helps me determine where I need extra triangles or suspended cymbals, or less commonly other things like extra bass drums or glockenspiels. I try to imagine if it is feasible for a player to physically move from instrument to instrument in order to play everything I have assigned. I also want to position certain instruments closer together (beside each other, perhaps) for music ensemble reasons; it is amazing how a distance of even ten feet can affect ensemble performance.

Usually, in the "North American" setup that we often use, brass is stage left, horns and woodwinds are in the middle, and percussion is stage right. Timpani are usually set up in front of the percussion; this provides the percussionists with a clear line of sight to the timpanist for ensemble purposes. From left to right (perspective of the percussionist) the basic setup is as follows: bass drum, cymbals (bass drum and cymbals often play together), snare drum, complementary percussion (e.g., triangle and tambourine); mallets such as glockenspiel and xylophone (sometimes vibes and marimba could go in a second row behind the first row if they are used less frequently); chimes are usually placed at the end of the mallet section. So, the entire percussion section is book ended by the bass drum and the chimes. I like the chimes at the end so that it does not obstruct sightlines between players. However, if there is a ton of rhythm instruments, and I feel that the glockenspiel and xylophone need to be close to the woodwinds for ensemble, I will put those two mallet instruments beside the woodwinds, then place the bass drum to the right, followed by the rhythm instruments.

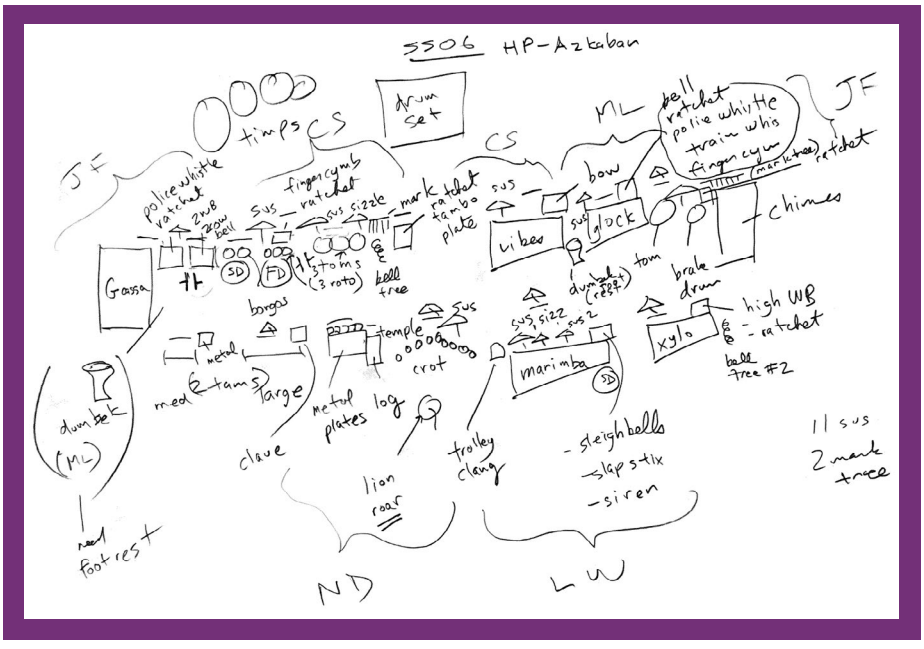
For big shows (e.g., *Harry Potter 3*, Disney's *Frozen*, John Williams), sometimes several versions of maps will have to be tried before settling on the final version. Often, I confer with the timpanist over the best plan; on occasion, for space reasons, timpani and percussion have been split, which is not ideal. Lately I have been trying to be more strategic about placing the instruments that have the most rhythmic responsibility (e.g., snare drum, woodblocks) as central as possible in the orchestra in order to mitigate the effects of sound delay.

If a drum set is used in a pops show, sometimes it can be situated near the percussion but as central as possible, beside the timpani. However, if there is a bass player hired, kit and bass are often planted in front of the brass, stage left. In this case, if the kit player must do any doubling, I make sure they have all the instruments they need, so they don't have

Figure 4: Part Assignments for Harry Potter 3, *using breakdown by bar number*

ML, CS, LW, ND	JF	ML			CS			LW			ND			JF
7M7-7M1-7M1A		bell, glock, xylo (100 on), bell tree (269), tam, mark			bell tree, xylophone until 16, vibes			marimba			crotalos, chimes			large triangle, large
7M2		sus			low drums			tam tam			log drums			tuned drums, toms
7M3-7M4		xylo, tam tam			vibes, deep drum, bell tree			marimba, high sus, high cymbal, sizzle			chimes, sus, piatti, large sus			G cassa
7M5		glock			piatti			marimba			med tam tam, Mark tree			Med sus, sus
7M6		glock, sus			vibes, bell tree			marimba			crotales (leave early to play tam), large tam tam			chimes
7M7		glock			vibes			bell tree						
7M8														Drum set
7M9		glock			tambourine			low drum						
7M11-7M12-End Credits		22-27	31-81	82-107	108-150	151-203	204-228	229-256	253-307		308-354	355-374	375-430	431-508
	ML	glock	glock	glock, finger cym	finger cym	glock	glock	glock	Glock, Police Whistle, Train Whist	Med deep s hea	deep s h drum			glock
	CS	bell tree	tambourine	tambourine, xylo	tambourine	tuned drums, ma	piatti		Vibes		small hand drum			snare
	LW		marimba	sleigh bells		sus	sus	Song bells (vibe	Trolley Clang, Siren		triangle		s triangle	
	ND	chimes	triangle	triangle, crotales	crotales		triangle	triangle	Metal Plates, Temple blocks		tambourine	small sleigh bells		piatti
	JF	Piatti	piatti, small hanc	small drum	antique drum	G cassa	G cassa	G cassa	Woodblocks/Cowbell, snare drum		G cassa		G cassa	G cassa

Figure 5: Example of Map for Harry Potter 3



to travel to our side to play something (see Figure 6). Having a monitor to hear the kit can solve sound delay issues and improve ensemble.

Using my iPhone, I will scan the map into Dropbox, so I can easily attach it to emails. Sometimes, no matter how much I plan, available space will force me to readjust, and so I leave myself more time by coming early to set up for rehearsal.

It is helpful for the percussion team to see the map; it reduces uncertainty and helps them mentally prepare their choreography for the first rehearsal. Of course, I do not want to micro-manage, so if people want to set up their station differently, they are welcome to.

Figure 6: Pops show setup; I was the only percussionist; drum set player and timpanist are also doubling; second row needed for wind-machine and marimba.

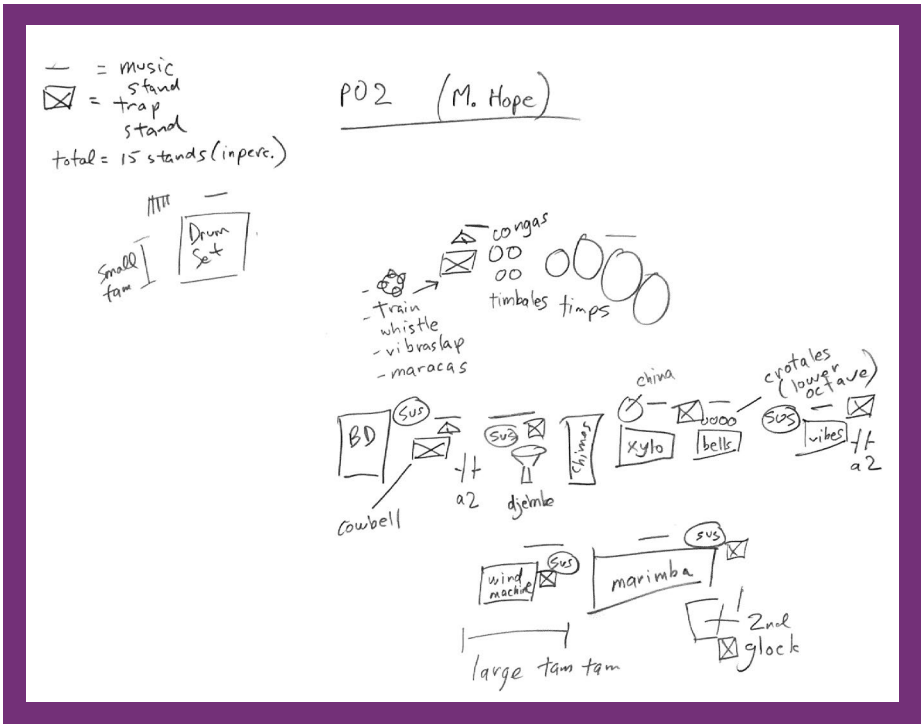
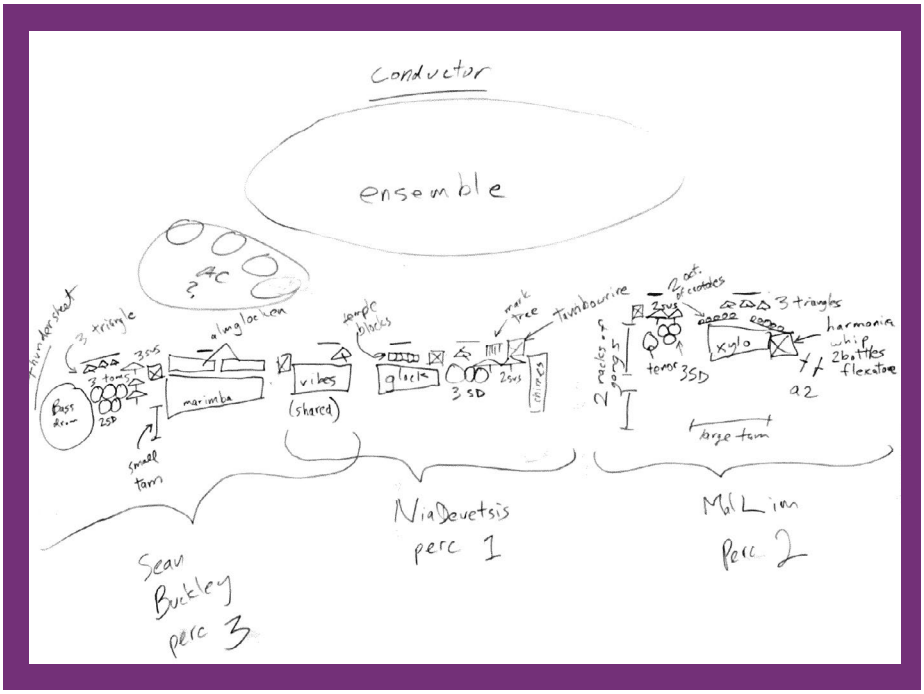


Figure 7: Map for Unsuk Chin's "Graffiti"



Doubling Sent: If anyone needs to be paid doubling (additional pay to play across the categories of percussion, mallets, drum set, and timpani), I make sure to send that information to the personnel manager two weeks before the first rehearsal. I do not want the personnel manager to have to look for this information, so I will email him directly.

Music Out: Even though the deadline is two weeks before the first rehearsal, if possible, I will try to get the music out sooner, especially if it is a difficult piece. Once the music is labeled with each sub's initials, I put it in the percussion cabinet ready for them to pick up. Each person has a package, so they do not need to look in the assignments to sort through a pile of music (see Figure 8). I will have also emailed a copy of the assignments to everyone; on occasion I will print out a physical copy and include it with the music (but I am also thinking about our carbon footprint these days). I let everyone know that the music is available, like "tomorrow afternoon after 1 P.M.," because I do not want the subs to be guessing. Then I tick this box.

Instruments/Map Sent: I need to send the equipment list and the map to the production manager two weeks before the first rehearsal, because he has his own team to communicate with. This also gives the personnel manager time to tell me: "Hey because of the space constric-

Figure 8: Music ready for pick up with clear labels.

tions, I don't think this is going to work." Then we redraw the map. I usually copy the message to the personnel manager, the Principal Timpanist, and the other subs, so everyone has the information. If I know that the conductor is interested and might have suggestions (from experience), I will copy her as well.

Prepare Trunk for Move: A few days before the first rehearsal, I make sure to ask the production manager when she plans to have the crew move the gear from storage to the rehearsal space. We use WhatsApp to communicate storage room issues between the production manager, the Principal Percussionist, and the Principal Timpanist. To help facilitate the move, I put as much of the gear on top of the trunk as possible. Some of the gear (timbales, crotales, tomtoms, RotoToms, temple blocks) have special stands that the crew might not be familiar with, so I put it on the trunk for them.

If we have to perform off site (e.g., the opera, ballet, outreach), we use a small trunk for instruments, trays, and mallets. If it is a big show, we will use two small trunks. We have a "road" bass drum, xylophone, glockenspiel, and drum set, and these must be specified in the instrument list.

Set Up and Tear Down: This is not a category I use in the spreadsheet, but it is an important topic, so I would like to address it. I am usually one of the first to show up at the first rehearsal to mark our territory and fine tune the position of instruments. The crew will normally have brought everything I have requested and roughly placed them according to the map. We percussionists are loud, so to maintain friendly neighbor status, a minimum 10-foot rule between us and the rest of the orchestra is our tacit understanding.

For big inter-galactic shows (Chin "Graffiti," Figure 7), we try to set up a day before the first rehearsal, but we must clear it with the personnel manager and the production team. There is often not a budget to pay us to set up like this, but in the interest of a smooth rehearsal and relieving stress, we may opt to forgo compensation (as long as it doesn't happen too often).

It is ideal if all rehearsals are in the concert hall, but this is not always the case. If we rehearse in the rehearsal hall, this necessitates setting up twice. In this case, I take pictures of the setup for reference, and I encourage the section to do the same for their individual setups. We try to keep trays intact and put them on or in the trunk.

Post-concert tear downs involve the whole team, and no one goes home until everything is packed in the trunk. We cover everything that needs to be covered, unlock wheels, wrap up the vibraphone cord, take off clips that we have used to keep trap stands at the appropriate heights, and pile instruments on top of the trunk. We prepare the equipment to facilitate transportation by the crew. So, percussionists are usually the first to arrive and among the last to leave. The Principal Percussionist leaves even later.

Clean Up Storage: After each show, the crew returns the trunk and all the gear to the storage room; it is my job to put things away. The timpanist and I usually communicate to see how best to arrange the instruments in view of what needs to be available for personal practice, to get ready for the next show. Our storage area is small, so we have to use space efficiently (see Figure 9).

CONCLUSION

At the beginning, it is crucial to have some sort of system one could consistently use to ensure no balls or mallets get dropped. I have shown what works for my context, and others will have their own specialized needs, but the main

Figure 9: Space is at a premium in storage, so we try to keep things organized.

Figure 10: Setup for Disney's Frozen

point will hopefully have been made. Over time, one could modify, simplify, or dispense with the system, but by then the system will probably have been hardwired as habit. When things go smoothly, everyone is happy.

ACKNOWLEDGEMENTS

I would like to thank Alex Cohen, Principal Timpanist, CPO, for all the warm support over the years; Tim Borton, former Acting Principal Percussion, CPO, for showing me the importance of a good map; Josh Jones, former Principal Percussion, CPO, for showing me what focus and creativity can do; Jesse Carrol, former Production Manager, for the extra shelves in storage; Luke Dahlgren, current Production Manager, for the good vibes; Rob Grewcock, music librarian, for getting us the music for Chin's "Graffiti" as early as he did; Karl Hirzer, Associate Conductor, CPO, for all the encouragement and getting the ESO bass chimes for "Graffiti"; Kyle Eustace, for all the generous lessons over the years and the absolutely brilliant playing; and Tim Rawlings, former Principal Percussion, CPO, for the continued support, even while retired, of the percussion community.

Malcolm Lim is the Acting Principal Percussionist for the 2021–22 and 2022–23 seasons of the Calgary Philharmonic Orchestra. He teaches percussion at the Mount Royal University Conservatory of Music and is the musical director of the Calysto Steelband. Malcolm has taught courses at the University of Lethbridge and led master classes at the Federal University of Rio de Janeiro. He was the musical director for the Calgary Escola de Samba from 2002 to 2012 and has also worked as a creativity facilitator at Banff Centre for Arts and Creativity.

Malcolm has a Bachelor's degree in Percussion Performance from McGill University, where he studied with Pierre Beluse and D'Arcy Gray. His graduate studies were at University of Montreal where he worked with Louis Charbonneau of l'Orchestre Symphonique de Montreal. Malcolm has published in *Percussive Notes*. He has studied with Trichy Sankaran (South Indian percussion), Glen Velez (frame drumming), Boca Rum (Afro-Brazilian percussion), and Michel Mirhige (Arabic percussion). He has received Canada Council for the Arts grants to study in Rio de Janeiro and Salvador da Bahia, Brazil.

A Band Director's Guide to Rolls on Percussion Instruments

By Andy Kolar

Think of the sound of a finger snap. What note value was it? Did it sound like a quarter note? Unfortunately, it was notated as a whole note. It may have *sounded* like a quarter note but it was being held for four beats. It just couldn't be heard. Confused? So are beginning percussionists.

When percussionists are first learning about note lengths, it can be confusing to discern the difference between note values because everything sounds the same. Compared to other instrument families, most percussion instruments don't inherently have the ability to sustain sound without playing more notes. It is therefore crucial for percussionists to understand the proper application of rolls on percussion instruments to emulate a sustained tone, similar to other instruments. This knowledge will help percussionists to think like every other instrumentalist, especially in terms of note length. There are, of course, different approaches to everything discussed here, but this article will cover the most common applications of rolls on various percussion instruments.

CHECKLIST FOR ROLLS

Three areas should be considered when performing any roll on a percussion instrument: Roll Type, Playing Zone, and Roll Speed. Each area will be addressed with each instrument discussed below.

Roll Types

Percussion instruments should be played with one of three roll types, which are Single-Stroke, Double-Stroke, or Buzz. Single-stroke rolls are used most often and are simple in concept. Play one note on each hand, alternating back and forth, and continue to speed up the rhythm until it sounds like a sustained sound instead of fast sixteenth notes. Although the concept is simple, single-stroke rolls can be difficult to execute with good sound quality and interpretation.

Buzz rolls, or multiple-bounce rolls, are used most often on a snare drum. Each hand should let the stick fall onto the drumhead and bounce multiple times with added pressure in the grip. That series of multiple bounces on each hand is called a buzz. The buzzes, alternating between hands, should then be sped up until the rhythm, like with single-stroke rolls, sounds like the sustain of one buzz instead of individual sixteenth notes with buzzes on them.

Double-stroke rolls are most often used in marches or marching percussion applications. The technique involves letting the stick bounce so that one stroke produces two notes. It is important that both notes sound equal in rhythm and volume. These doubles on each hand are called "diddles."

Playing Zone

Where percussionists play on each instrument has a tremendous impact on the sound that is produced. Even if both hands are playing exactly the same height at the exact same volume, it can sound uneven if one hand is out of position. On any drum, each hand should be the same distance from the center or from the rim. This will ensure that the resonance produced by each hand is as close as possible to each other.

The center of any drum will produce the shortest sound. Therefore, rolls should very rarely be played in the exact center of the drum. For accessory percussion instruments, the playing location changes on each instrument, but the concept still holds that the location of impact by the hand or implement should be the same distance from the edge or center.

Roll Speed

The roll speed used on each percussion instrument varies greatly. There is no universal answer for exact rhythms or tempos to use. It often comes down to what the student can understand and ex-

ecute the most consistently and musically. It can be easy for percussionists to get fixated on what rhythm their hands are playing and forget to just listen to what sound is being produced. Is the roll even and smooth? If not, try to increase the roll speed, or slow it down, or change the playing zone, or alter the grip. The sound that is produced needs to be the primary deciding factor when it comes to deciding on a roll speed.

INDIVIDUAL PERCUSSION INSTRUMENTS

Snare Drum

For concert applications, buzz rolls (multiple-bounce rolls), are the most common, with the possible exception of marches or pieces with military connotations. The playing zone should be just off-center. It is critical that the throw-off switch is directly in front of the person playing the drum. This will not only allow easier access to the mechanism, but it will align the snares on the bottom of the drum with the playing position of the player. Many students stand too close to the drum and inadvertently let their sticks migrate too far forward on the drumhead. Aligning the drum in this position will keep the sticks on top of the snares, even if they move too far off-center. Of course, students can play close to the edge of the drum, if needed, but the sound of the drum could change dramatically. This can be helpful for extremely soft passages; however, students should not get accustomed to using this playing zone crutch to play softly. It is critical to learn to play softly in the proper playing zone.

Which stick is used is also important. Drumsticks with a more spherical bead shape will tend to bounce more and will usually lead to more success when first learning how to roll. Once students understand the basic principles, other sticks could be used to change the weight distribution and response of the stick.

Another aspect that will assist students' growth is deeply understanding their grip. The primary grip point on the stick is the fulcrum. It is the point at which the stick pivots in the hand. There are many interpretations of what contact points should be used to form the fulcrum, but this approach uses the thumb and index finger. More specifically, the contact point should be between the pad of the thumb and the first knuckle of the index finger. See Figure 1.

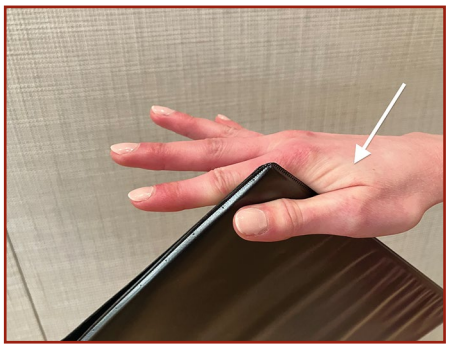
Figure 1: Fulcrum

It is important to realize that although there needs to be some tension in the fulcrum to hold onto the stick, that tension should stop at the fulcrum. The back three fingers then wrap around the back of the stick loosely. It can help to have students hold onto the stick with only the fulcrum, and wave the back three fingers. This mimics the amount of hand tension in the appropriate place. See Figure 2.

Figure 2: Full Grip

The fulcrum pressure needed to hold onto the stick is not only due to the muscle in those fingers, but also the "webbing" muscle between the thumb and index finger. Learning to use this muscle can be mimicked by holding onto the corner of a small book or binder with the webbing between the thumb and index finger. See Figure 3. This will help to avoid a gap between the thumb and index finger that often occurs with inexperienced students.

Figure 3: Web Muscle



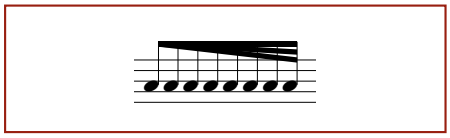
Another helpful concept is the idea of "digging in" to the head — especially for buzz rolls. This idea can be discovered through an analogy of squishing a bug. Point to a spot on the drumhead, then put the student's stick bead on that spot, saying that they have just squished a bug. Ask the student if there is a way to make sure the bug was really dead without moving the stick at all. The only logical conclusion is to "mush" the stick harder into the head. This usually happens with some additional pressure from the interior side of the wrist. See Figure 4. Digging into the drumhead, like anything, is a balancing act to understand how much digging helps or detracts from the sound.

Figure 4: Digging in

For buzz rolls, the student should begin by playing slow individual buzzes where the stick bounces multiple times in rapid succession. Students should begin with

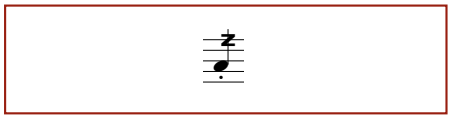
slow buzzes on each hand, then alternate between hands, making sure to match sound and technique, then slowly speed up the rhythm to approximate sixteenth notes or sextuplets. If buzzes have one longer note, then get faster, it means that there is likely not enough fulcrum pressure. See Figure 5.

Figure 5: Not Enough Pressure Notation



If the buzz sounds almost like a non-buzzed note with bounces being almost non-existent, then one of the pressure areas has too much tension. See Figure 6.

Figure 6: Too Much Pressure Notation

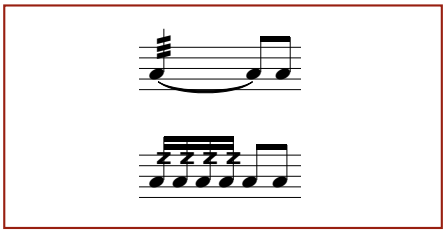


The player should experiment with variations in tension with the fulcrum, the "dig" pressure into the drumhead, and the web muscle. Proper execution will be a balancing act among those three pressure areas. Adjustments to pressure in any area should be made in incremental amounts to allow the student to understand where and how those changes impact the sound of the buzz.

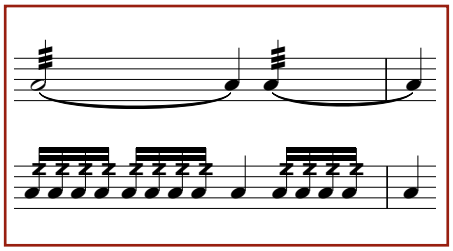
In general, a good starting point for understanding what rhythm should be played within rolls is to use sixteenth notes. Any note value that is written should be filled with sixteenth notes. For example, if a half note is written, two beats of sixteenth notes should be played, each with a buzz on them. If a dotted quarter note is written, a beat and a half worth of sixteenth notes should be played, and so forth. Below are three examples of possible notations on top and what rhythm the student's hands should play below. See Figures 7.1–7.3. Students need to understand that when a roll is seen, their hands play a different rhythm underneath what rhythm is written.

Figures 7.1, 7.2, 7.3: Roll Base Rhythm Examples

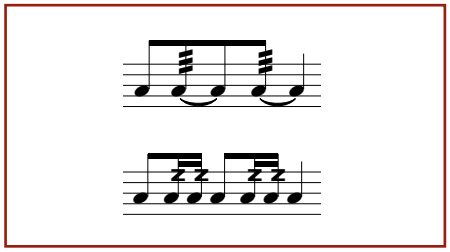
7.1



7.2



7.3

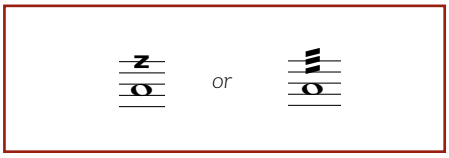


For double-stroke rolls, a basketball analogy can be helpful to understand rebound. When dribbling a basketball, the hand does not follow the ball all the way to the ground. The hand throws the ball to the ground by letting go, to allow the ball to bounce back on its own. The same rebound concept should be applied to double-stroke rolls. The stick should raise up and be thrown into the drumhead while maintaining attention on the amount of pressure in the fulcrum. Making adjustments to fulcrum pressure will help to allow two notes to be played with one stroke. The term "diddle" is often used to describe these two notes.

The same process should be followed as buzz rolls with individual doubles on each hand, then alternate back and forth between hands to match sound and technique, then start to link the doubles together. It is important that doubles are achieved with one stroke, as opposed to two separate wrist motions. It is also critical that each note of the double is heard. Many beginning students let the second note of the double fall into the drum and, as a result, the double doesn't sound even.

Regarding notation, buzz rolls can have a notation of either a "Z" or three slashes through the stem of the note. This three-slash notation, however, could be interpreted as either double-stroke or buzz roll, depending on the context of the passage and the musical piece as a whole. For concert applications, this three-slash notation will most often be a buzz roll. See Figure 8.

Figure 8: Buzz notations



Open double-stroke rolls have a notation of one slash through the stem of the note and are used very frequently in marching percussion writing. See Figure 9.1 for an example of the slash notation and Figure 9.2 for an example of how that slash notation should sound.

Figure 9.1. Slash notation

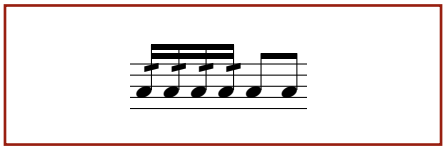
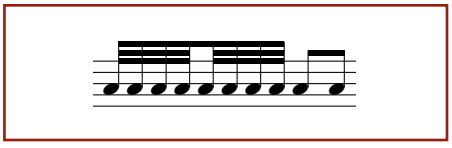


Figure 9.2. Sound of Slash Notation



Marching Percussion (Drumline)

There is some overlap in notation between marching percussion and concert notation, but there are also notations that mean one thing in marching band and another in concert applications. Buzz rolls

have a notation of a "Z" through the stem of the note and can be used on marching snare, marching tenors, and marching bass drums. See Figure 8.

Open double-stroke rolls have a notation of one slash through the stem of the note and are used very frequently in marching percussion writing. As discussed above, notes with three slashes could be interpreted as either double-stroke or buzz roll on drumline instruments, depending on the context of the passage and the musical piece as a whole. It should be noted that this three-slash notation will not be used as often in a marching drumline context.

The playing zone for snare and bass should be the middle of the drumhead. Marching tenors, though, should be played about an inch or two from the rim to get the desired "ping" sound instead of a "thud" that would be produced if the middle of the head is played.

Timpani

Timpani should always be played with single-stroke rolls. The playing zone should be about one-third of the way from the edge of the drum to the center. Playing in this location will allow the drums to have the most resonance. The mallet heads should be about a dollar-bill width apart from each other. See Figure 10.

Figure 10: Timpani Playing Position

Roll speeds vary greatly depending on the size of the drum and tension of the head. In general, though, smaller drums will need to have a faster roll speed, while lower drums can usually have a slightly slower roll speed because the drumheads vibrate longer when struck. It is important for both sticks to be the same distance from the edge of the drum.

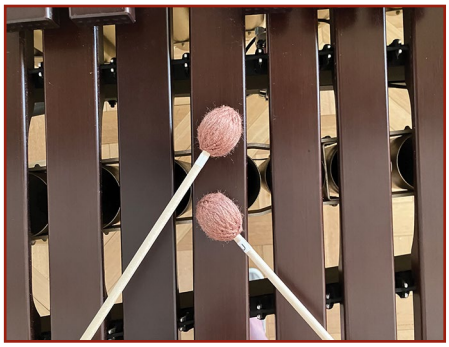
The technique used while playing timpani is the most critical component to smooth-sounding rolls. Deciding on a hand position is the first step. German grip is with the palms facing the ground, and French grip is with the thumbs facing up. German grip provides some more control because more of the palm is in contact with the mallet, but it can often sound punchy. French grip allows for more finesse because the mallet can move more freely, but it can be harder to control. With either approach, the hands need to be more relaxed than students will want to be. That said, French grip is used more frequently.

Timpanists, more frequently than other percussionists, often use their fingers to pull the mallet toward the palm instead of only using the wrist. Smaller muscles can move faster than large muscles, so the use of fingers can help to increase roll speed.

Students also tend to assume that, due to the size of the drums, big and/or soft mallets should be used at all times, which is not the case. For non-rolled passages, a medium-hard mallet will help the timpanist to project a "dah" articulation instead of "wah," which can get lost in the ensemble. For rolls, students often use too soft of a mallet because they cannot achieve a smooth roll with harder mallets. Therefore, they choose softer mallets to hide the roll being uneven in terms of volume or rhythm. There are, of course, times where soft mallets are appropriate to use, but the majority of timpani parts, including rolls, will require harder mallets than the student may assume.

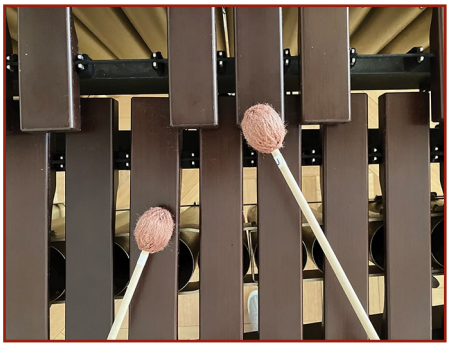
Mallet Percussion

For all mallet percussion instruments, single-stroke rolls should be used. The playing zone for rolls is the same as for single notes. The center of each bar will produce the fullest sound. When performing rolls, however, it will be difficult for both mallet heads to occupy the exact center of the bar. Therefore, it will sound more even if both mallets play just off-center so that the sound produced by each hand will match. See Figure 11.



Another option for playing zones is to play on the very edge of the bar when playing accidentals. This can be done for rolled or non-rolled notes. Keep in mind that if a roll is being played between two different notes, the mallet heads need to be the same distance from the center of the bar. If both notes are being played in the center of the bar they will match. However, if an accidental is being played on the edge of the bar, then the other mallet should also move off-center so that both notes are closer to the same sound quality. A roll will never sound smooth if one note is played in the center and the other is played on the edge. This method could be called "Edge & Third," where an accidental is played on the edge of the bar and the other note is moved off-center to allow the notes to sound as identical as possible. The "third" refers to being about a third of the way from the front end of the bar. See Figure 12.

Figure 12: Edge and Third



The roll speed for mallet percussion instruments changes drastically depending on the bar material, mallet choice, and register on the instrument. In general, notes in the higher register will need to have a faster roll speed for the roll to sound smooth and a slightly slower roll speed toward the lower register.

Concert Bass Drum and Gong

Concert bass drum and gong should both be played with single-stroke rolls. To roll on the gong, players should stand in front of the gong with their back toward the instrument. Their arms should be at their sides playing behind their body, and they should play at around 4 o'clock and 8 o'clock, playing halfway to the center of the gong. See Figure 13.

Figure 13: Gong Position

For concert bass drum, the playing zone should be altered to around 12 o'clock and 6 o'clock, since the player will be standing behind or beside the drum. Again, playing halfway to the center will be appropriate. This will allow the student to stay in the same body position when playing rolled or non-rolled notes. See Figure 14.

Figure 14: Bass Drum Position

The grip should be slightly loosened to allow the mallet shaft to move more freely in the hand. Having a pair of matched rolling mallets is also critical to having a consistent roll sound. Due to the size of both instruments, the roll speed should be slower than most students assume.

Suspended Cymbal

For suspended cymbal rolls, single-stroke rolls should be used with a medium-soft pair of yarn mallets. The cymbal should be played at 4 o'clock and 8 o'clock on the very edge of the cymbal. Playing closer to the center will result in a "puh" articulation that will distract from a smooth roll sound. The attack of the cymbal roll should almost always be very soft so that the roll entrance is not heard. The roll speed should quicken if a crescendo is written, making sure that the hands stay the same distance from the edge and play at the same height.

If possible, a gooseneck should be used. A gooseneck is an attachment for a cymbal stand that allows a cymbal to be truly suspended instead of sitting on a cymbal stand in the traditional manner. See Figure 15. Using a gooseneck allows the cymbal to vibrate more freely and have more sustain by using a cymbal strap. Using a cymbal stand in a typical manner will work as well.

Figure 15: Suspended Cymbal on Gooseneck

Concert Toms

For concert toms, single-stroke rolls should be used most often. Buzz rolls could be used in some contexts, but concert-tom parts often add an earthy texture to the music, therefore a more open interpretation (single-stroke) will usually be more appropriate. The tension on the drumheads is also usually lower, which can make buzz rolls more difficult to perform, especially on bigger toms. The playing zone should usually be just off-center, similar to snare drum. That will help to achieve a fuller body, but without the punch of playing in the direct center.

Roll speeds vary greatly depending on the size of the drum and tension of the head. In general, smaller drums will need to have a faster roll speed, while lower drums can usually have a slightly slower roll speed, because the drumheads vibrate longer when struck. It is important for both sticks to be the same distance from the center or edge.

Tambourine

Tambourine parts require different roll techniques than the ones discussed above; these are called shake rolls and thumb rolls. In general, shake rolls are used for longer roll passages, and thumb rolls are used for shorter roll passages or rolls in the middle of a rhythmic figure. These are not absolute rules, of course,

but should be used as a general frame of reference.

Most concert tambourines with heads have a spot on the frame that does not have jingles. That is where the tambourine should be held in the non-dominant hand at a 45-degree angle. The dominant hand shape can be achieved by making a cup with the fingers, then aligning all the fingertips together. The dominant hand's wrist should rest in the middle of the tambourine head, and the grouping of fingertips should use a knocking motion to strike the tambourine near the edge of the head. See Figure 16.

Figure 16: Tambourine Hand Position

To play a shake roll, the non-dominant hand should raise up to a vertical position beside the shoulder. The wrist should then be shaken in a sideways motion fast enough to sound like a roll instead of sixteenth notes. In practice, though, it is close to a controlled wrist spasm. See Figure 17.

It can improve the articulation to begin the roll with a note in the regular playing position before moving the non-dominant hand to the shake-roll position. The same could be done at the end of a shake roll to give a more definitive ending.

Thumb rolls can be more difficult to master, but they help to make rolls in the middle of rhythmic passages more musical. The first step is to make sure you have unscented beeswax. Better quality tambourines will usually come with a small block of it when purchased, but beeswax is easy to buy on its own as well. The beeswax should be applied in a circular motion to the tambourine head about an inch from the edge. It needs to be pushed into the tambourine head somewhat more aggressively than one may think during the application process. The outer two-thirds of the tambourine head should be coated with beeswax. The goal of the beeswax is to add some friction for the finger to perform a thumb roll. The thumb uses the wax to "bounce" across the tambourine head to produce a vibrating sound. This is similar to how students are taught to buzz their lips before putting them onto a mouthpiece. The thumb "buzzes" across the wax-covered area on the tambourine to produce a roll. See Figure 18.

Figure 17: Tambourine Shake Roll

The speed of the dominant hand is determined by the sound produced. A smooth vibration of the jingles is the goal without any hiccups in sound. In less germaphobic times, it was common practice for performers to lick their thumb to add moisture for the wax to grab as the thumb passes by. With an eye toward being more hygienic, a small water-dampened sponge could be placed near the player to use instead of licking the thumb. Alternatively, another finger could be used as well; the middle finger being the next most common.

Figure 18: Tambourine Thumb Roll

Whichever finger is used, it is important that the finger is not overly stiff. There is a balancing act between the amount of pressure into the tambourine head and looseness of the finger being used to allow it to vibrate. The thumb also needs to move in a circular motion around the tambourine so that the thumb itself is always going forward. An analogy could be the steering wheel of a car. The hand could stay in a vertical position while turning the wheel around a bend, or it could flex side-to-side with the fingers wrapped around the wheel during the turn, which is closer to the desired technique. The finger being used needs to move directly forward as it moves around the tambourine; therefore, the hand position needs to change as the thumb roll continues.

Every percussionist's hands are slightly different, so it is important to give students the opportunity to work on this technique. Band warm-ups are a great way to add rhythmic stability from the percussion section while having them work on techniques that they may not be able to use otherwise. If the student has long fingernails, thumb rolls will likely be difficult because the nail will scrape the wax off. It would require altering finger position to allow the pad of the finger to contact the tambourine head.

Triangle

The basic playing position for triangles is for the non-dominant hand to hold the clip and triangle. The percussionist should first make a "C" with the hand and hold it sideways to mimic holding a soda can. The clip should sit on top of that C shape so that the triangle sits below the opening in the hand to allow the fingers to mute the triangle, when needed. See Figure 19.

Figure 19: Triangle Playing Position

The open corner of the triangle should point toward the non-dominant arm. For example, if the left hand is holding the triangle, the open corner of the triangle should be on the performer's left. This will allow the dominant hand to play the triangle in one of two rolling locations.

Rolls can be played in either the top or side corner. The technique is to go back and forth quickly between the two sides of a corner about two inches from the corner. For non-rolled notes, the triangle could be played on the exterior side, across from the triangle opening, or on the triangle bottom. Students will likely have more consistency while playing on the bottom, since their hands are used to moving in an up-and-down motion, instead of a sideways motion when playing on the side of the triangle. The same logic holds true for playing rolls on the bottom corner instead of the top corner. Student percussionists' hands are used to moving up and down, so this playing location will likely lead to a more consistent sound. See Figure 20.

Figure 20: Triangle Roll Location

Three factors will impact the sound of the triangle. One is the triangle beater itself. Each style of triangle beater will react differently and produce a different sound. Second is how close to the corner the percussionist is playing a roll. The last variation is how much of the beater is beyond the contact point between the beater and the triangle.

It is important for percussionists to play with the correct triangle and the correct triangle beater. Different notes within one piece of music may require a different touch and therefore a different triangle and/or beater. This exploration of sound should be encouraged not only for triangle but for all percussion instruments.

Shakers

Although percussion parts usually call for specific instruments, percussionists should feel free to make adjustments depending on what sound is desired. For example, even though a part may say "shaker," it may be more appropriate to use an egg shaker, cabasa, or shekere. It is important for percussionists to find the right shaker for the context of the part.

For shakers, egg shakers, caxixi, maracas, or any other shaker with internal beads, it is helpful to think about what the beads are doing on the inside. If shaken in a more aggressive back-and-forth motion, the beads are hitting opposite walls and will produce a more aggressive sounding roll. See Figure 21.

Figure 21: Typical Shaker Playing Position

However, if the shaker is swirled, it produces a smoother, and usually softer, sound. See Figure 22.

Figure 22: Swirl Playing Position

It is also possible to add variation in the roll sound by changing the location of the beads inside the shaker. If the shaker is tilted to one side, it changes the weight distribution and sound of the roll.

Hand Percussion

All hand-percussion instruments like congas, bongos, or djembe should be played with single-stroke rolls. These instruments should be played with the hands, but congas and bongos could be played with sticks in certain applications. The characteristic sound of each drum will be achieved by allowing the drum to resonate freely, which means the hands should play about halfway between the center and edge. The hand should rebound off of the drumhead after it hits the head. It is common for students to allow their hands to "stick" to the drumhead after the head is hit. This will mute the drumhead and will not allow for good sound quality. The roll speed needs to be fast enough to sound like a roll instead of fast sixteenth notes, just like any other single-stroke roll application.

Cowbell/Woodblock/Temple Blocks

Cowbells, woodblocks, and temple blocks should all be played with single-stroke rolls. The playing zone should be at the edge of the opening in the middle. The mallet heads will need to be close together, since moving either one very much will result in a significant change in sound quality. That will lead to an uneven sounding roll between the hands. The roll speed needs to be fast enough to sound like a roll instead of fast sixteenth notes, just like any other single-stroke roll application.

CONCLUSION

There are many instruments that are not presented here on which rolls may be played. It is important to remember that rolls are meant to emulate sustain. Smoothness is the goal of any roll, so experimentation should be encouraged for students to understand how their instruments behave when manipulated in different ways.

The author would like to thank Ally Kenny for her contributions to the pictures for this article.

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Habits of Flow

How to implement flow in your teaching

By Spencer Jones

"It is not enough to be happy to have an excellent life. The point is to be happy while doing things that stretch our skills, that help us grow and fulfill our potential." —Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*[1]

Individuality is a human experience. Perhaps another way to phrase that statement would be, humans are unique thanks to the concept of the self. Each person can identify themselves based on their interest, experiences, knowledge, and goals. Every experience is different, and everyone has a past that guides them and an idea of what they want their lives to look like.

Another largely understood truth of the human experience is that everyone around us is in the constant pursuit of happiness. People are pursuing activities that make them feel happy, whether it is finding joy in short, day-to-day moments or having lofty goals that take years to see through. A desire to understand these two concepts of human nature is what inspired the late Mihaly Csikszentmihalyi to study the ideas of not only what makes your life happy, but what allows you to enjoy the moment in which you are living.[2]

How can each person find value and enjoyment from doing things that seem to reap no immediate benefit? How do athletes move with agility and control in high-pressure situations? How do Buddhist monks spend hours within deep meditative states? How do artists and performers find meaning in repetitive practice? Csikszentmihalyi came to understand that these moments where individuals find clarity within their actions are a state of flow — flow being fully present mentally and physically when performing an action.

Before Csikszentmihalyi began researching the flow experience in the 1970s, there were historical religions and disciplines that related to flow. Throughout Buddhist teachings, there is discussion of entering deep states of meditation and years of focusing on the creation of positive mental energy. Buddhism stresses the role of meditation training to gain mastery over all levels of mind that leads to everyday happiness.[3]

Wolfgang Amadeus Mozart began his training as a musician at the age of two. By the age of seven, Mozart was thought to have the gift of perfect pitch and was composing regularly. Historically, it was assumed that these were innate gifts. Now, with more context, we understand that Mozart's home environment was surrounded by music and had rigorous teachings from his father, Leopold Mozart.[4] So, was Mozart a child prodigy who swept the world or was his home life filled with engaging musical experiences?

Michelangelo spent four years working on the ceiling of the Sistine Chapel. It is reported that he painted for days at a time, and he was so absorbed in his work that he did not even stop for food or sleep until he reached the point of passing out. After this, he would wake up refreshed and, upon starting to paint again, re-enter a state of complete absorption.[5]

Bruce Lee spoke about his experience and discipline with mental training in an interview in 1971. More recently it has become a part of ESPN's documentary series titled *Be Water*. Bruce Lee says, "Empty your mind. Be formless. Shapeless. Like water. Now you put water into a cup, it becomes the cup. You put water into a bottle, it becomes the bottle. You put in a teapot, it becomes the teapot. Water can flow, or it can crash. Be water, my friend."[6]

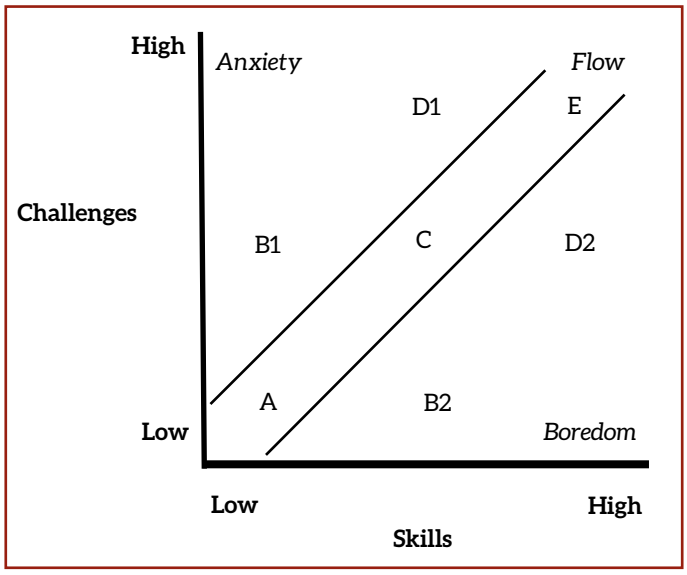
What Bruce Lee is describing sounds like mastery of the state of flow. These are major historical figures who have experienced periods of flow similar to those Csikszentmihalyi has focused on. Even though all these historical references happened within different contexts, they are similar in the process of mastery of one's craft to achieve flow.

Csikszentmihalyi first published his research on flow in 1990. This book does not only include the research behind flow, but speaks in-depth about the human experience. Each person will experience flow in an individual way and will possibly find different challenges getting to that point. One person may find

reaching the physical state easier than reaching the mental state, and vice versa. Not everyone is involved in sports or arts, but they can still find a state of flow in their everyday lives. The key factor in understanding how to speak about or possibly even teach flow is to reflect on human nature.[7]

EXPERIENCING FLOW

Each person can struggle with different things when in a new task. The following graph shows a challenge to skill range of where people can experience flow. The optimal experiences happen within A, C, and E. B1 and D1 occur when the challenge is too difficult for a person's current skill level, leading to anxiety. B2 and D2 occur when someone is not challenged enough for their skill level, leading to boredom.[8]



To experience flow, there are some necessary characteristics and factors. This section will cover the conditions as well as provide examples of how to achieve them.

Conditions 1 through 3 are based on extrinsic stimuli, and 4 through 9 are intrinsic. As stated earlier, everyone will experience flow differently. So, some might reach some of these conditions easier than others. All of these conditions have had some research or documented personal experience from professionals, such as tennis coach Timothy Gallwey, who wrote *The Inner Game of Tennis*, which has sold over a million copies. His experience teaching beginners to professionals for more than 40 years has given him insight into the mental side of peak performance.[10]

Gallwey also co-authored *The Inner Game of Music* with Barry Green. Gallwey's teaching methods have been widely applied in diverse fields. He has co-authored multiple books discussing the inner game for golf, music, skiing, and everyday life as well. These sources are not formal research, but documented cases of effective flow strategies implemented by successful instructors.

In relation to condition 1, people find activities very enjoyable when there are clear instructions in goals that need to be met. In a recent study focusing on physical health development of middle schoolers, a research group in Greece began implementing goal-based physical education. Perceived autonomy support in physical education classes, autonomous motivation in physical education, enjoyment during physical education, vitality, attitudes, perceived behavioral control, and intention toward out-of-school physical activity were measured at the beginning and end of the intervention program through anonymous questionnaires. The results indicated that goal setting served as a useful strategy for the promotion of autonomy support in physical education lessons, producing positive effects on leisure-time physical activity.[11]

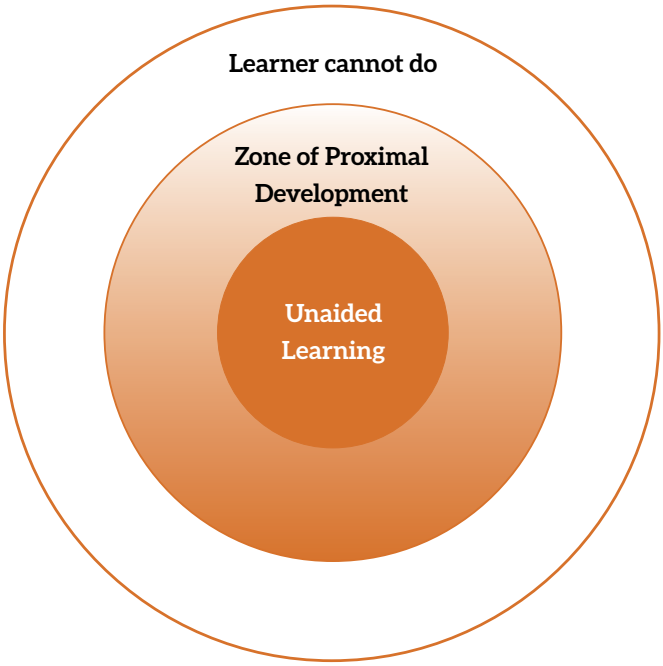
Having an experienced teacher guide you along a learning process will give you clear instructions and ideas to help you go about making improvement. How feedback is provided can also change how easily a person can experience flow. Researchers in Turkey set out to see how important academic feedback was for undergraduate students. The students also had the ability to discuss how they would prefer to receive their feedback. By the end of the study, the findings proved that feedback has a functional impact on academic engagement and development. These findings in relation to a sense of being valued, the opportunity to choose how and when they could engage with feedback, and the requirement for academic clarity supports academic development.[12] Instructions provide guidance for later when learning a new task alone. Without this feedback, the mind becomes dis-

CONDITIONS NECESSARY TO FACILITATE FLOW[9]

1. Goals are clear: One knows at every moment what one wants to do.
2. Feedback is immediate: One knows at every moment how well they are doing.
3. Skills match challenge: Opportunities for action in the environment are in balance with the person's ability to act.
4. Concentration is deep: Attention is focused on the task at hand.
5. Problems are forgotten: Irrelevant stimuli are excluded from consciousness.
6. Control is possible: In principle, success is in one's hands.
7. Self-consciousness disappears: One has a sense of transcending the limits of one's ego.
8. The sense of time is altered: Usually it seems to pass much faster.
9. The experience becomes autotelic: i.e., it is worth having for its own sake.

tracted, bored, or feels uncertain about the quality of the task at hand.

With regard to condition 3, skill sets can be developed more consistently when the challenges are within a person's current abilities. A task that is too far reaching can lead to frustration and discourage progress. This matter directly relates to Lev Vygotsky's Zone of Proximal Development (ZPD).



This circle demonstrates the different zones a person can experience. It expresses what is capable, what needs assistance, and what is out of reach when someone is attempting a different range of challenges.[13] Everyone has their own zone that allows them to operate within a task by themselves, then with the help of guidance, and then out of reach from their current abilities. Finding the balance between each ring can help people develop their abilities in different settings. Learners should be able to accomplish small goals on their own and turn to instructors for guidance when met with larger challenges. This point also speaks to the importance of having an experienced instructor to model from and to ask questions of. You cannot achieve step 3 of flow without the help of step 2, having guidance.[14]

THE TWO-SELVES CONCEPT

Once one achieves consistent results with conditions 1 through 3, it becomes easier to experience conditions 4 through 9. Timothy Gallwey noticed a trend with some of his students who were struggling. They would approach a ball to strike it, blunder in some fashion, and then scold themselves mentally or verbally. Seeing this pattern become a regular habit, he introduced his students to the two-selves concept. Self one [S1] is the conscious mind, or "teller," while self two [S2] is the subconscious mind or "doer."

People often find themselves in a state of work where there are two separate persons present. S1 will critique S2 and constantly be a part of the task at hand. This is something all artists experience one time or another. For example, you are practicing your scales and you know exactly how you want them to sound and feel, but unused muscles suddenly become tense because S1 is trying to control S2. With helpful guidance and clear instructions, anyone trying to experience flow can begin to move away from trying hard, which is the energy of S1, to focused effort, which is the energy of S2. Once S2 becomes successful at the task, S1 begins to trust S2 more and is willing to step aside, after which they become better in sync and can function harmoniously.[15] Gallwey's methods directly relate to conditions 4 through 9, which focus on what is happening mentally during learning periods. This is the same method Green focuses on in *The Inner Game of Music*.[16] Musicians benefit in many ways when flow is involved in their learning process.

Research into the applications of flow in music has found varying outcomes. For younger age groups, flow could be a concept that is initially challenging to comprehend. Casey Clementson decided to do a mixed-method study of how middle-school instrumental students would experience flow. After completing surveys with the students to understand their experience and holding a case study of the band program, the results showed middle schoolers do not easily experience flow. Young adolescent students do not conceptualize flow the same as older groups.[17] This could be for several reasons such as lack of experience, comprehension variables, and the lack of extensive research into this age group. Older, more experienced individuals can experience flow more easily than younger people.

Many people have encountered the "10,000-Hour Rule." On the surface, this concept might lead one to believe that to be a master of something, you must spend 10,000 hours doing it. There is some merit to this idea, but it is missing something. Professionals describe the 10,000-hour rule needing to be time spent intentionally honing a craft. It is not enough to spend 10,000 hours doing the task, it must be a deliberate and meticulous 10,000 hours.

Anders Ericsson, the psychologist who studied expertise, interviewed professionals from multiple industries. One of his main focuses was professional musicians and understanding how they approach excellence as a daily habit. Ericsson decided to research what separated the good, the better, and the best of violin players in a conservatory and those in a professional job in Berlin. At the conclusion of his interviews and research, he discovered that all the violinists agreed on how to go about practicing: have a plan, practice in solitary, document your playing, and get plenty of rest. The single thing Ericsson found different was the number of documented hours spent practicing. The good student at the age of 18 had an average of 3,420 hours, the better averaged 5,301 hours, and the best averaged 7,410 hours. The conclusion of the study supports the amount of time spent focused on deliberate practice leads to better quality performers.[18]

So how can musicians apply these findings to their musical

journey? There have been some studies and methods developed to do just that.

A recent study completed by Sangmi Kang focused on understanding how music educators can experience flow in different settings. Kang asked each educator to reflect on moments when they experienced flow in performance and teaching settings. The idea was to see if there was any correlation between the two. The results of the study found the flow experience occurred under different circumstances. Music educators experienced flow while performing when the challenge, skillset, and enjoyment conditions were met; flow was experienced during teaching when feedback, goal clarity, and autotelic emotions were present.[19] What we can draw from this study is that flow experiences in music will be different based on the activity. It is important for educators to recognize the differences within the activities and between individuals, and how we can guide our students to experience flow.

STRATEGIES

Here are some strategies to use with your students in both one-on-one and group settings based on the conditions necessary to create the flow experience:

1. Create an ideal practice and studio environment. Students may feel discouraged or overwhelmed by practice spaces and studio spaces that are cluttered. Consider organizing your facilities to create more structure that your students can follow and adhere to. Move instruments that are not being regularly used into storage and have designated spaces for different forms of practice. You may possibly have a practice space that is designated for keyboards, timpani, drum set, or multi-percussion.

2. Create clear goals before you begin. Stepping into a practice or rehearsal space without a plan is setting up the time to be unorganized. Document your individual practice goals before and after each session to create measurable growth over time. If you are leading a rehearsal, write out the goals on a board or discuss them with the ensemble before you begin. This can help your students be on the same page so they can be more focused during this period.

3. Be positive. Negative thought processes and discussion can block the flow experience before it even begins. Nurture in your students' positive self-talk and support them in their efforts to continue trying. This will also help you connect with your students more so you can better understand them as individuals. Much of Csikszentmihalyi's research on flow is centered around understanding human emotion and behaviors. Encourage your students to keep trying new ways to learn, and celebrate their successes with them.

4. Empower autonomy. Much of the flow experience is inter-

nal and personal to everyone. Dictating what students play, practice, and focus on musically can hinder their creative nature. In a *Percussive Notes* article, Nancy Zeltsman shared her thoughts on the importance of programming and how it can affect both the listening experience and the necessity to play standards within the percussion genre.[20] Students want the option to choose what they are working on while also trusting their instructors to help them choose literature that is going to help them grow. Consider providing your students with multiple options between the standard repertoire, new literature, and arrangements. Provide insight on why you would want them to learn a certain piece and how they will benefit from that experience. This can help students to better enjoy the learning process to make the experience more autotelic.

CONCLUSION

In the future, more research could be done into how flow could be implemented into teaching methods. Flow is commonly discussed as something separated from private lessons or studio teaching, but those environments could be a preferred location for helping students develop their flow experience. Many previous studies focused on learning about how professionals experience flow, and not specifically the age of adolescent to adult. Csikszentmihalyi has a number or studies and research on adolescents experiencing flow in different settings, but more could be done to understand how to integrate flow into teaching the less experienced.

This topic has been something of an eye-opener for me, mainly because it requires one to focus on what is similar and different between individuals. From a teacher's perspective, flow can influence how one sets up practice areas, studio settings, and how to approach one-on-one lessons. This all may sound tedious for large-scale teaching settings, but implementing individualized goals leads to more consistent progress. The conditions for experiencing flow could influence how instructors could better set up their students for success, both within a studio and within life.

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Next Generation *Stick Control*

By Zach Miller

Does this look familiar?

1. RLRL RLRL	2. LRLR LRLR
3. RRLL RRLL	4. LLRR LLRR
5. RLRR LRLL	6. RLLR LRRL
7. RRLR LLRL	8. RLRL LRLR

What if I told you page one of George Stone's *Stick Control* had nothing whatsoever to do with sticking? You know the page — endless rows of eighth notes with R's and L's? I've recently spent time trying to breathe new life into our old friend George Stone, and I've uncovered loads of untilled soil in that ground.

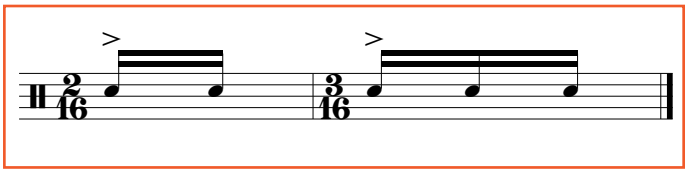
My approach for maximizing the studies in *Stick Control* lies in what's *not* on the page rather than what *is* on the page. Setting aside the familiar guide to sticking, what the R's and L's can provide for us as learners are patterns of alternation between any binary relationship related to elements of music. Think about how many areas of music exploration that opens up: subdivision levels, dynamic contrast, open vs. closed hi-hat, rudiment pairings, varied numbers of partials per pulse, chords, song form, etc. Basically, any musical element that can be employed in two contrasting ways can be overlaid onto the R's and L's. Suddenly, you have a vehicle that can be utilized to learn a multitude of skills beyond singles, doubles, or paradiddles — so let's have some fun with that!

Video: Stick Control as 2s and 3s

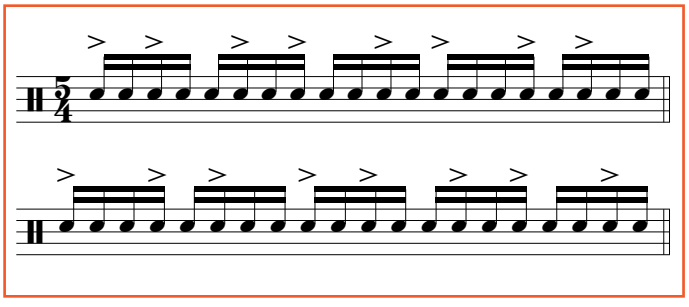
MIXED METER

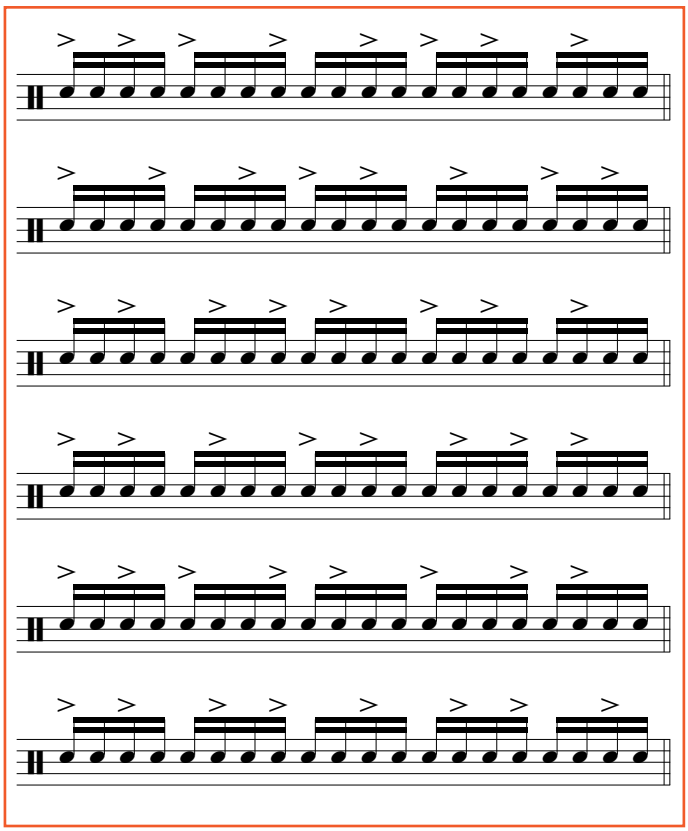
(Groups of 2 and 3)

The binary relationship I'm going to employ in the following exercises is that of differing rhythmic durations. In doing so, I have discovered fascinating phrasing within odd time signatures for hand exercises and drum set grooves. We're barely going to scratch the surface in this article, but hopefully this can trigger your imagination as to what's possible. There are many options, but for now let's start with R's representing a group of two sixteenth notes (accenting the first note) and L's representing a group of three sixteenth notes (accenting the first note).

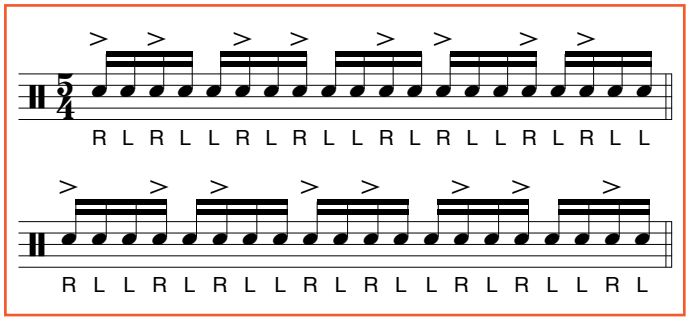


As we employ *Stick Control* through this lens of interpretation, we are only going to use the stickings that feature an equal number of R's as L's (numbers 1–8 above). In doing so, the new phrase will add up to 20 sixteenth notes. This can be formatted to be a 5/4 measure, subdivided to the level of sixteenth notes (20 sixteenths = 5 beats x 4 subdivisions per beat). Below are numbers 1–8 mapped out using 2's and 3's.

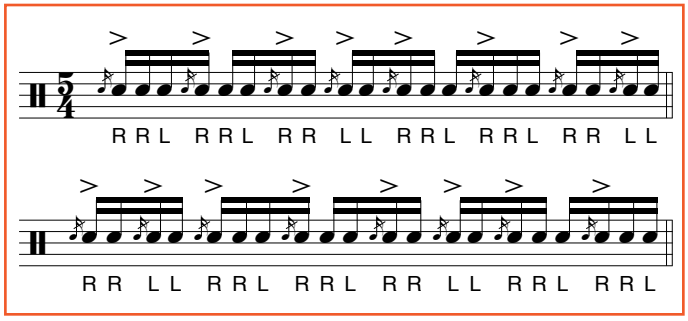




Now let's apply a sticking in which accents are exclusively right-handed and all other notes are left-handed (*Stick Control* 1 and 2).



You can also apply rudiments to the phrase. Take flam taps (a 2-note rudiment) for the R's, and Swiss triplets (a 3-note rudiment) for the L's, as an example. Check out how this lays over *Stick Control* number 3 (RRLL) and 4 (LLRR).

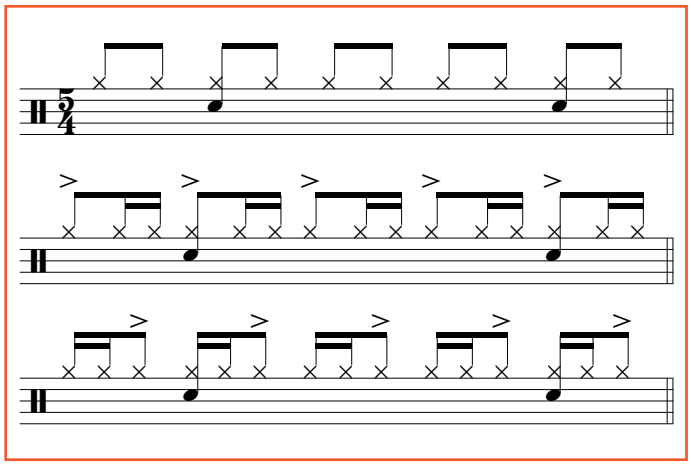


Because it loops back onto the same starting hand, you'll want to practice starting with both hands. These examples are just barely pushing open the door into a room full of possibilities for hand exercises and unique phrasing in 5/4.

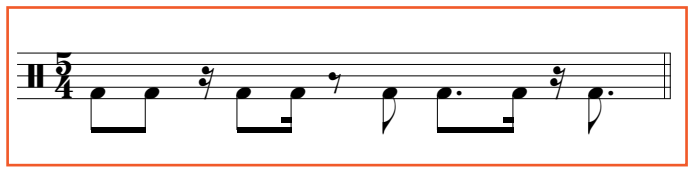
The drum set affords an even wider range of possible applications to explore. Let's bring this into backbeat/funk and Brazilian grooves along with a couple of non-stylized independence challenges at the end.

BACKBEAT/FUNK

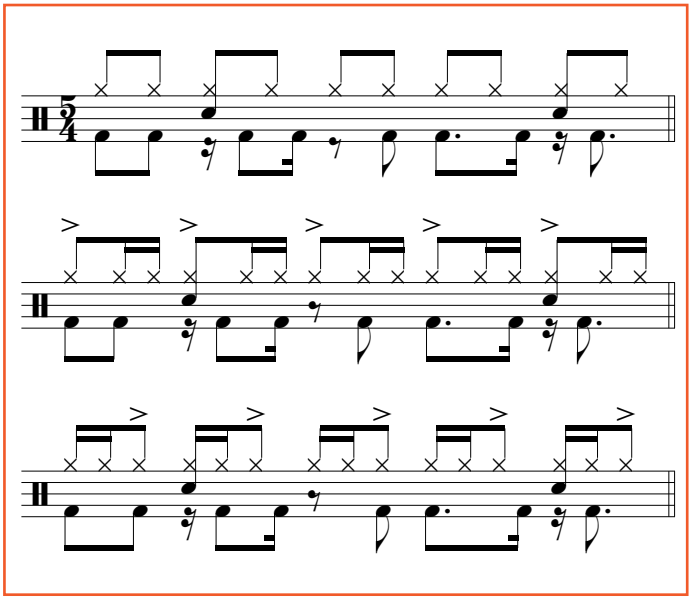
Beginning with funk, let's establish three 5/4 backbeat ostinatos for the hands under which we will apply *Stick Control* with the bass drum.



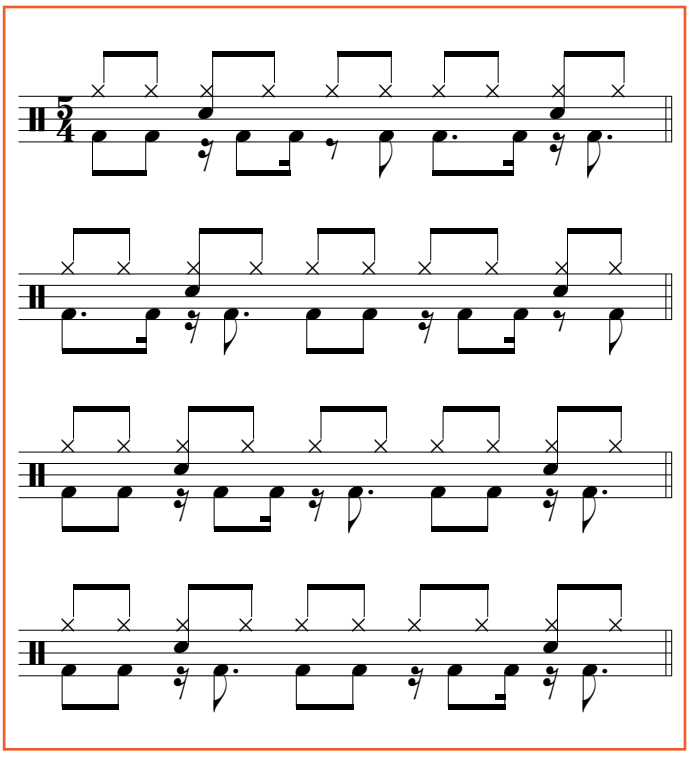
The accent pattern created by the groupings of 2 and 3 will now be assigned as single notes on the bass drum. In other words, R's are eighth notes and L's are dotted eighth notes mapped across measures of 5/4. Here is the bass drum for number one: RLRL RLRL = 2+3+2+3+2+3+2+3.



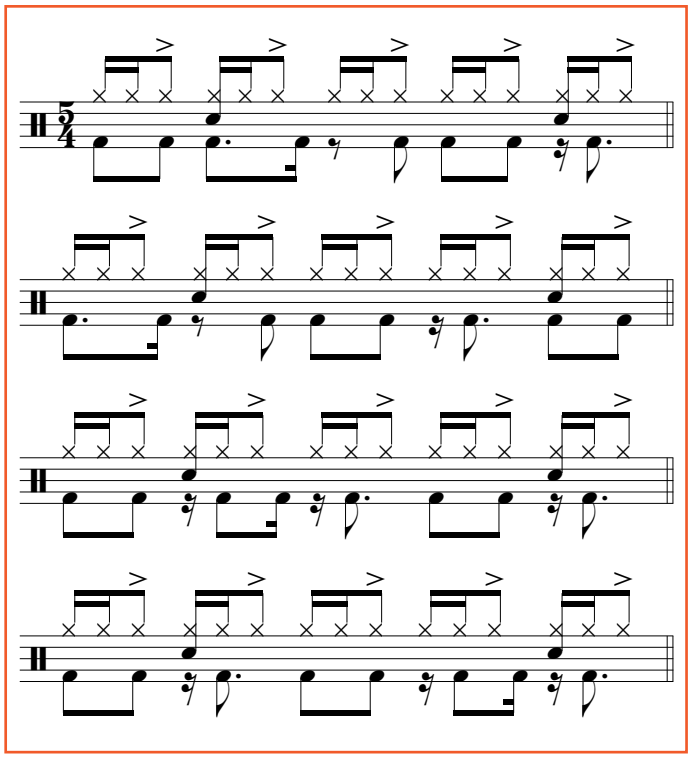
Add Hand Ostinatos A–C, and the 5/4 funk vibe starts jumping off the page!



Now, let's try sticking 1–4 under Ostinato A.

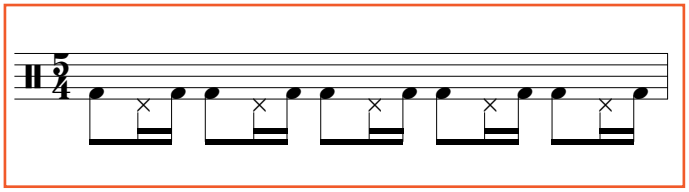


And here's Ostinato C over *Stick Control* patterns 3–6 on the bass drum. Experiment with omitting any bass drum notes that fall at the same time as a snare drum note. I've left them in for the next examples.



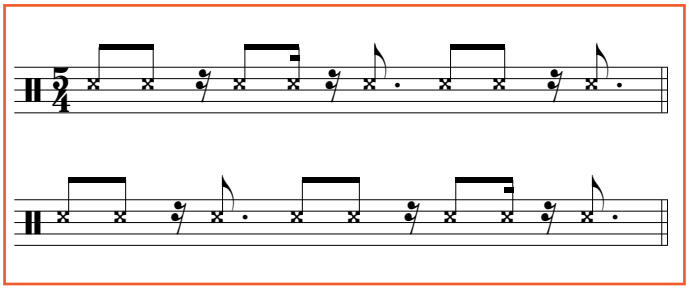
BRAZILIAN

To get the Brazilian feel rolling, we start by adapting a traditional foot pattern under our *Stick Control* syncopations to the Brazilian groove in 5/4.

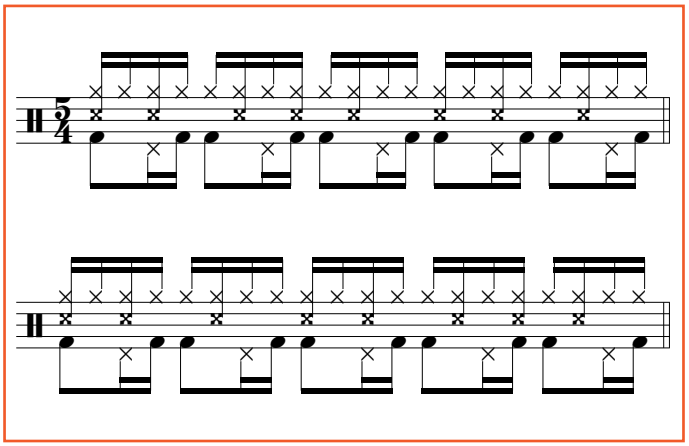


Next, we're going to apply our *Stick Control* syncopations as comping patterns in our left hand. Starting with a slower tempo, let's play light Bossa Nova sixteenth notes on the ride cymbal and apply the stickings to the cross-stick. Here's what that would look like for numbers 5 and 6.

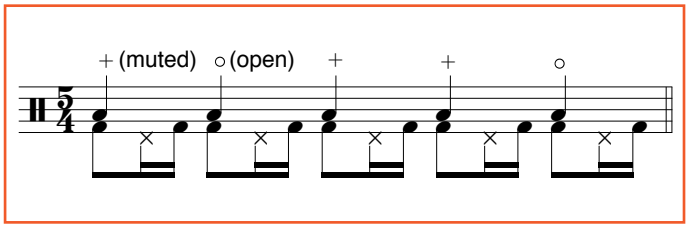
A. Cross-stick only



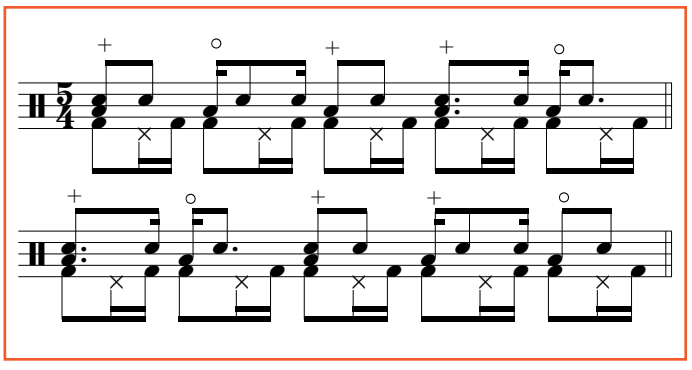
B. With ride and foot ostinatos



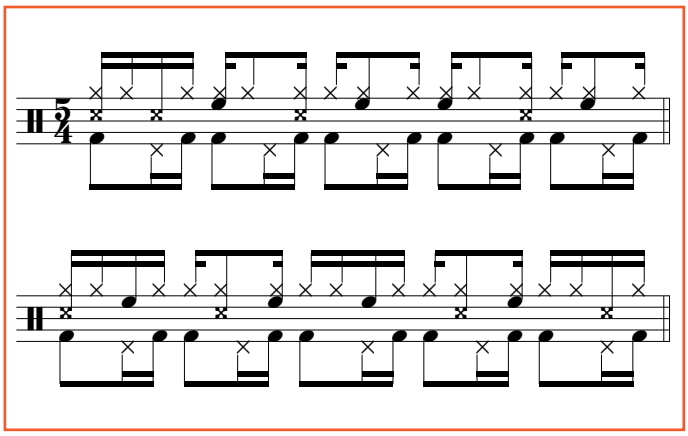
If we want a more traditional street samba feel we can increase the tempo, apply a surdo pattern on the floor tom (open and muted notes), and move the left hand to snare. Here are the feet plus right hand that make up the ostinato:



Apply numbers 1–2 on the snare drum:



Our last Brazilian version orchestrates the left hand between two voices — cross-stick and rack tom — by assigning them to R's and L's, respectively. Accompany this with a samba ride cymbal pattern of your choice. Below, I'll use a "1 e_a, 2 e_a" rhythm. Here is how that would look utilizing *Stick Control* numbers 7 and 8:

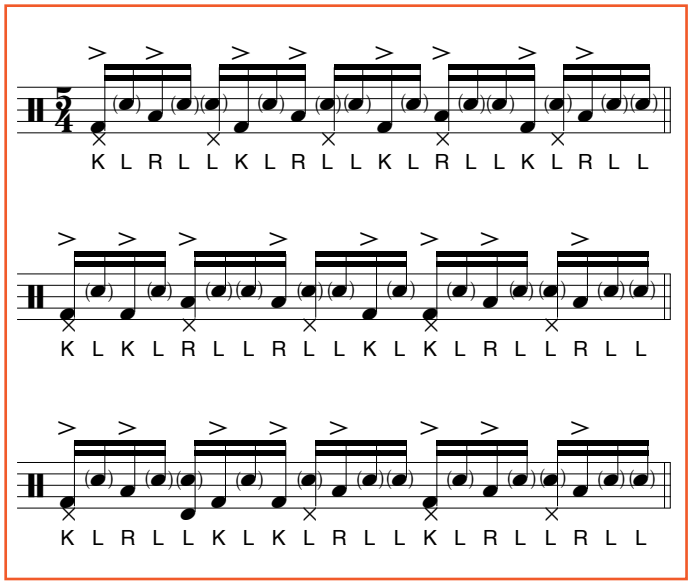


MISCELLANEOUS CHALLENGES

The following two exercises fall outside familiar stylistic tropes, providing challenges that test your independence and firm grasp of syncopations within 5/4 time.

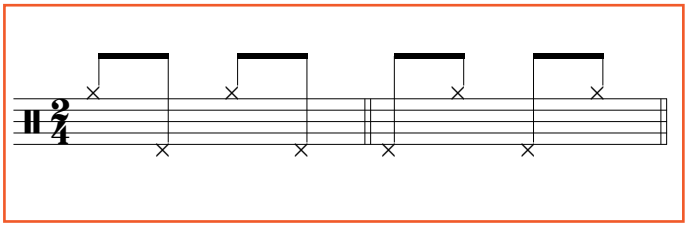
1. Kick/Floor Application

As I suggested in the last of the Brazilian examples, we are going to split up the 5/4 accent pattern between two voices. In this case, we will use bass drum for the R's (groups of 2), and floor tom for the L's (groups of 3). The remaining partials NOT played by the orchestrated voice will be filled out by ghost notes on the snare. That renders the R's and L's to be "KICK-snare" or "TOM-snare-snare" respectively. Accompany this with a left foot/hi-hat quarter-note pulse. Here are numbers 1, 3, and 5 (alternating, doubles, and paradiddles) with this application:

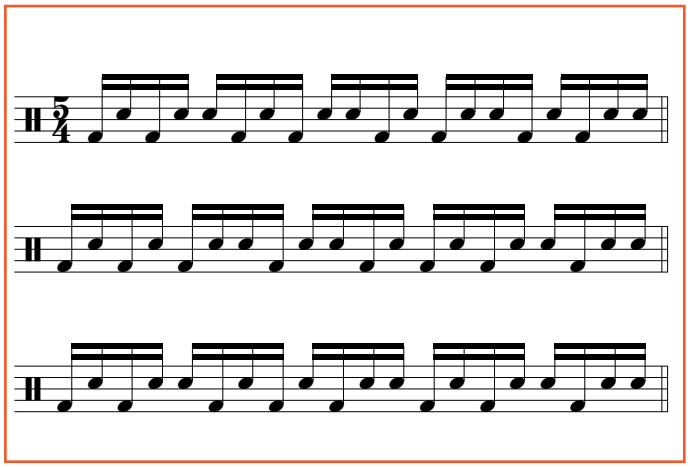


2. Linear Kick/Snare Application

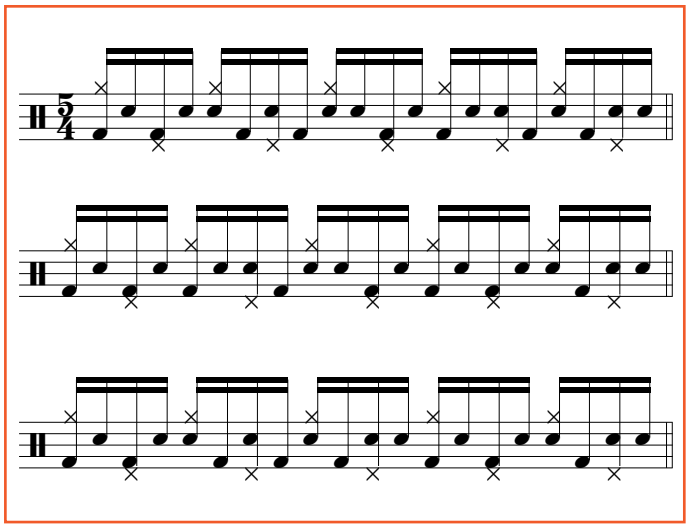
This challenge puts the 5/4 syncopations entirely back onto the bass drum foot while filling in the remaining partials of the 2's and 3's with ghost notes on the snare drum. Once that is comfortable, layer alternating ride cymbal and left foot hi-hat eighth notes. There are two permutations of the cymbal pattern.



Before trying the whole package, get a handle on just the *Stick Control* portion without the cymbal ostinato. Numbers 1, 3, and 5. Play the snare drum as ghost notes.



Once again 1, 3, and 5, but with cymbal Ostinato A:



Now that we've cracked the door open to some unorthodox interpretations of *Stick Control*, take the momentum and run with it. Consider different orchestrations, change grouping lengths, explore studies other styles, etc. The limit is how imaginative we are willing to be. Good luck!

Zach Miller has resided in Minneapolis, Minnesota, since 2000, holding adjunct faculty positions at several universities, teaching pedagogy classes, percussion ensembles, and private lessons. As a curator of educational content for Tackle Instrument and Supply Company, Zach created a collection of advanced independence concepts he has consolidated into a book called *SYNCO Patterns Polyrhythms and Permutations*. As a performer, Zach tours with mainstream pop artist Eric Hutchinson, and CCM artists Sara Groves and Jason Gray. Between traveling stints he performs his own compositions under his solo artist name, Auburn Heights, playing cinematic through-composed progressive groove music featuring rhythmic complexity couched in modern jazz harmony. Zach is also a hired session drummer at studios across Minnesota. For more info, follow him on Instagram: @zmillermusic.

Sleight of Hand: The Illusion of Sustain on Marimba

By Blake Tyson

As marimbists, we must constantly rearticulate notes in our attempt to create the illusion of sustain. Some see the marimba's lack of true sustain as a weakness. I don't think of it that way. On the contrary, it gives us expressive possibilities that other instrumentalists don't have. I think about rolls as the closest thing we have to vibrato. It is obviously not "real" vibrato where the pitch oscillates, but the speed and texture of the strokes that create our rolls can create similar musical effects. It's a vibrato of intensity not unlike the kind created by the opening and closing of vibraphone resonators. Although it can get complicated when you start to analyze the details (and there can be exceptions), the tension and release of music can guide most of our choices of roll types, roll speeds, and texture. When the musical moment and the roll come together, we can create a convincing illusion for the listener.

Professional magicians will tell you that creating convincing illusions involves a lot of hard work and a lot of practice. The motions have to be instinctual. I often use the analogy of being a magician when I talk with students about the techniques of rolling. If a magician performs an illusion ten times in a row (using the same method), the audience is going to catch on. It will seem less like magic and more like a trick. Therefore, we need to constantly "change the trick" when we play so the audience will be less likely to catch on to our deceptive ways. A great illusion seems both absolutely impossible and absolutely real. My goal is for the audience not to think about changes in roll speeds, roll types, or roll transitions. I want them to hear the music, not the technique.

One thing that is often overlooked, especially by younger players, is how much practice rolls require. It's not just about controlling the speed; it's about being able to adjust the voicing of each mallet involved in the roll. It's about ensuring precise control of the moments of contact to avoid leaning toward dotted or swing rhythms inside the roll that draw attention to the trick. It's about developing an overall sense of touch that allows the instrument to sing. You will need strength and stamina to achieve the subtlety necessary to create convincing illusions.

I use the traditional hand-to-hand roll as my default sound. I think there is beauty in its simplicity, and it offers a huge range of expressive possibilities. If I could only take one roll to a desert island, the hand-to-hand would be it! But learning how to develop fine control over each roll type, and how to seamlessly transition between them, assures you the ability to realize the most imaginative and captivating performances possible.

Hand-to-hand rolls can create emotionally powerful effects, but the performer has to listen carefully to the sound of the instrument and must have a clear musi-

Make sure every roll type and texture is a choice that serves the music you are playing.

cal interpretation in mind. If a constant roll speed is maintained, there may be moments where it enhances the performance, but most of the time, it will seem unrelated to the music. It would be like a violinist maintaining a rhythmically constant (and uninterrupted) vibrato throughout a performance. Instead, use varying roll speeds to enhance the effect of tension and release in the music. Metering rolls is a great way to start learning the technique, but the ultimate goal is to break away from consistent rhythmic pulsing. Having control over subtle and expressive variations in speed and voicing will lead to a more convincing illusion of sustain, even in the upper reaches of the keyboard.

In masterclasses, I often hear students play chorales using a lot of double-lateral rolls (ripple rolls). When I ask them why they are using them, they say something like, "Because it sounds cool." I usually disagree with them. Double-lateral rolls create an interesting texture, but if they don't fit the music, they just aren't that cool. The double-lateral roll can create bubbling excitement or help increase a feeling of harmonic (or post-harmonic) tension. But most chorales don't require a constant stream of bubbling excitement. Overusing double-lateral rolls can be musically tiring for the listener (and physically tiring for the marimbist).

One-handed rolls and double-independent rolls can create many effects on the instrument. You can blend sounds in a different way than with any other roll. And it can really make the marimba shimmer. I find the double-independent roll is a great sound for moments of low (or no) tension. Executed properly, it can help create the most sustained and seamless "choir-like" sound on the instrument. Of course, as nice as it can be, that's not always the sound we want. Make sure every roll type and texture is a choice that serves the music you are playing.

Performers need one more thing to put all of this into practice successfully: The ability to hear the music they are creating in real-time, as it happens, in order to control the sound of the marimba and the musical direction of the performance. Listen to the marimba; listen to the room. Use the instincts you've developed to create the sounds your musical imagination guides you to play. Respond to the sounds and let them take you through the piece, determining the roll speeds and roll types that combine to create the illusion of sustain. In the end, we should strive to make the technique virtually invisible so that the listener only focuses on the music. That's the trick!

Blake Tyson is professor music at the University of Central Arkansas. His compositions are performed in concert halls around the world, and his own performances have taken him to five continents and 35 states. He has performed and presented masterclasses in Egypt at the Ministry of Culture and the Library of Alexandria, at international festivals in South Africa and South America, at the Beijing Central Conservatory, and in Norway as part of the European Cultural Capital celebrations. In addition, he has been a featured artist at numerous PASICs He holds a DMA and Performer's Certificate from the Eastman School of Music, an MM from Kent State University and a BM from the University of Alabama. His teachers include Marjorie Engle, Peggy Benkeser, Larry Mathis, Michael Burritt, Halim El-Dabh, and John Beck.

Integrating Physical and Psychical Waves in Electroacoustic Vibraphone Composition

By Samn Johnson

Waves can be conceptualized in their physical form that constitutes musical sound, and metaphorically as felt in stages of grief, healing, and other subjective experiences. Both these concepts involve building up, dissipating, then returning with enhanced clarity before breaking into some kind of resolution, or cycling indefinitely. The combination of these concepts inspired my 2019 piece "it comes in waves" for prepared vibraphone and electronics. It was commissioned by Gloria Yehilevsky as part of her "Waveshape" recital, which was programmed as beginning and ending at the crest of a single large wave, with ebb and flow throughout, symbolizing perceived patterns from personal experiences. In the larger structure of the program, "it comes in waves" was penultimate, as the waveform returned upwards. This article will discuss the process of its creation, provide insight into composer and performer collaboration, and suggest future directions for electroacoustic vibraphone composition.

The electronic track was created exclusively from processed samples of vibraphone sounds recorded by Gloria. This led to close collaboration with her, learning what sounds she likes to make and recording them together. It also gave me a chance to explore creative sound design, digging deep into the instrument's sonic DNA to discover what permutations are possible. Some of these samples were mutated beyond recognition, sounding more like drums or synthesizers, while others sound very much like a vibraphone and intermingle with the live instrument.

While the subsequent formal outline is germane to some elements of the present discussion, this article principally focuses on my particular use of sampling. I describe the collaborative process of selecting and recording samples with Gloria, go into a few specific techniques for modifying them, and share some observations about the sonic character of the instrument that I picked up while working with this material, taking sampled sounds apart and reconstituting them to create a wide variety of timbres. These observations informed my creative choices in this piece and led me to nurture an interest in compositional procedures that fall under the umbrella of spectralism. Additional concepts occurred to me while working that I chose not to implement in this piece. I hope to continually develop those in future pieces for the vibraphone and beyond. I conclude by elaborating on an example of one such concept; using putty preparation to alter the tuning of the bars, opening a viable path to writing vibraphone music in unequal tuning systems such as Just Intonation (JI) without requiring specially constructed instruments.

You may wish to listen to the piece for context. It can be found on Bandcamp (*https://samnjohnson.bandcamp.com/album/it-comes-in-waves*) and YouTube (*www.youtube.com/watch?v=IuAwYEX-J4Oc*).

OUTLINE OF LARGE-SCALE "WAVESHAPE" STRUCTURE

Inspired by Gloria's prompt, the piece also incorporates my fascination with overlapping cycles, using a five-chord pattern that is modified in various cyclically-determined ways. Each cycle comprises a wave, in which material in a faster tempo (metric modulations of quarter to quintuplet quarter note) are interspersed with increasing frequency, leading to an overall sense of acceleration. When a cycle completes, the wave crests with chromatic "interrupting" chords, and we move into the next section. These cycles do not repeat exactly, but are part of a larger

wave pattern, which produces a higher preponderance of faster, quintuplet-tempo material in each successive cycle. The process culminates in a final modulation from the quarter to the quintuplet quarter-note tempo, with no reversions back, simultaneously demarcated by a reversal of the repeated chord progression. An example of these structural devices is provided in Figures 1 and 2.

CONCEPTUAL FRAMEWORK AND AESTHETIC MOTIVATIONS

When talking with colleagues or studying other composers' music, the rationale and aesthetic motivation for compositional procedures interest me as much as their technical implementation. In that spirit, I provide a brief description of how my sampling procedures and choices about musical form are woven from the same aesthetic cloth. My music is steeped in pre-modern thinking in which musical proportions have numerological, symbolic, and cosmological meaning. I perceive these ideas at play in the works of composers whose music I am drawn to and inspired by, particularly, 15th-century polyphonists such as Johannes Ockeghem and Guillaume Dufay. A typical expression of this idea is the concept of *musica universalis* or "music of the spheres," which connects musical intervals with celestial orbital periods. These ideas arise in various esoteric and ancient philosophical systems and practices such as neoplatonism, which views reality as emanations from a singular One or source, or alchemy, which is interested in permutation of simple material into a variety of complex forms.

My interest in these concepts leads me to pursue musical devices that mirror them. At the formal level, repeating a simple five-chord progression, which is subjected to a series of mathematically-determined permutations is an instance of a source, or neoplatonic One, achieving multiplicity through permutations of itself. The same idea is at play on the timbral level. Drawing all sounds in the piece, electronic and acoustic, from the same instrument is a deeply alchemical concept and also concerned with interrelationship and permutation. In a sense, this is an extreme generalization of the musical device of canon, so frequently employed by the above-mentioned 15th-century composers; a singular subject or source is combined with permutations of itself to create a varied, polyphonic tapestry. This is a strong conceptual linking of micro- and macrocosm. The literal sound waves of the vibraphone samples are operating according to the same logic as the wave-shape form of the piece, as in an often-quoted saying from the esoteric *Emerald Tablet of Hermes Trismegistus*: "as above, so below."

Figure 1. *A segment of my formal outline for the piece. The roman numerals designate the order of chords in the repeating progression, not their harmonic function. Blue lines above the roman numerals indicate that this chord is played in the baseline quarter-note tempo. Purple lines indicate injection of the quintuplet tempo. In this segment, we see the space between purple lines becomes progressively shorter, each blue segment being one chord shorter than the last. There are additional pink lines below certain chords, which correlate with the labeling x1.5. These indicate an extension of that chord by half its typical value. While the purple quintuplet lines become more frequent, these pink x1.5 extensions of duration become less frequent as the section progresses. Note also that the section concludes when the pink and purple parameters coincide, the first time this has occurred in this particular "wave." There are other cycles indicated in the sketch that govern parameters beyond the scope of the present discussion.*

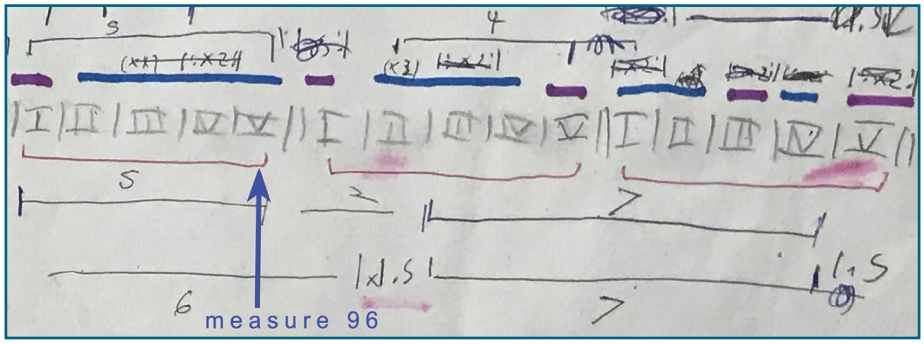
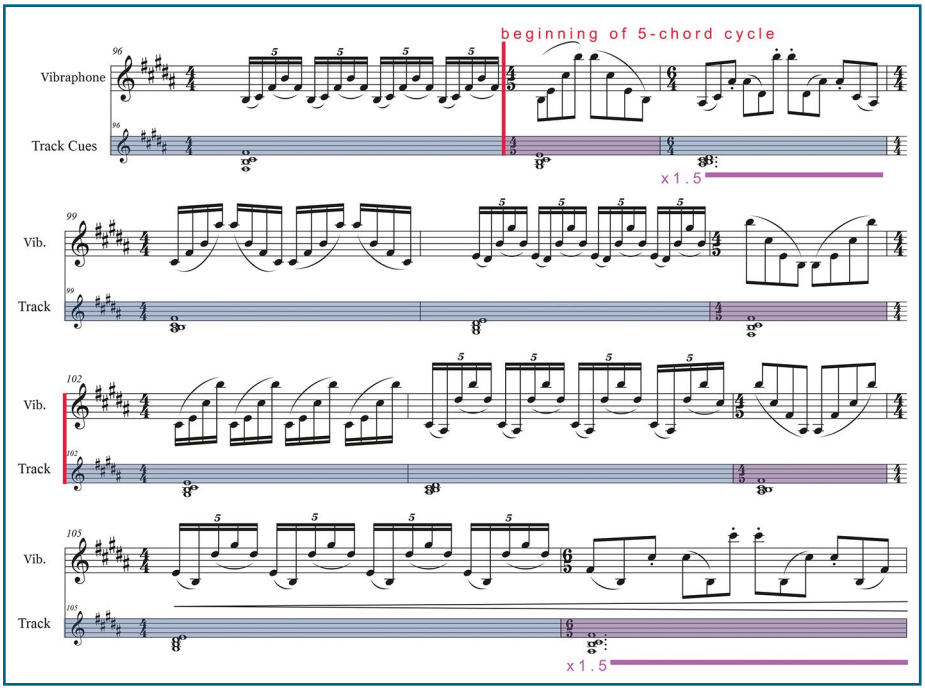


Figure 2. *An excerpt from the score, beginning at measure 96, the placement of which is indicated in Figure 1. The color coordination of the manuscript sketch is now applied to the score in order to facilitate their correlation by the reader.*



COLLABORATIVE SAMPLING PROCESS

The process of collecting samples was highly collaborative. Gloria and I, working on different continents, would meet remotely to compile a list of instrument sounds that we both were drawn to. I have applied this technique in a few other pieces now, and I find this part of the process to be deeply satisfying and engaging. By cataloging sounds that a performer likes to make, I'm also learning about the types of things they like to do with their instrument, which I can then incorporate into their instrumental part. We compiled a list of prepared sounds, such as putting tin foil on bars, percussive sounds like scraping and hitting resonators, as well as playing the instrument with various implements such as chopsticks, bows, and mallets of different materials. I also composed the structurally-foundational five-chord progression prior to the sampling sessions so that Gloria could record more elaborate material such as arpeggiations of these chords.

I could then use that performed material in the track, taking arpeggiations of the chords, reversing them and running them through delay, for instance. We also recorded quite a few isolated individual notes, which I was then able to drop into sampling software that allows one to map audio files to a musical keyboard (for example, when you play a C4 on your keyboard, the recording of C4 on the vibraphone sounds in the software). For this purpose, I used Native Instruments' Kontakt to create playable MIDI instruments that were incorporated into the track. Some of these Kontakt instruments had minimal processing and were essentially a MIDI bowed or tin-foil-prepared vibraphone. Others were processed heavily and sounded like synthesizers.

EQUALIZERS AND THE HARMONIC SERIES

Many of the techniques I used to process these samples led to an increased awareness of the *spectral profile* of the instrument: which frequencies are present, and to what extent, across the full spectrum of frequencies audible to humans. Much of the radical reshaping of the vibraphone sounds was accomplished with a powerful software equalizer plugin, the Fab Filter ProQ3 (FFProQ3). Equalizers (or EQs) are a standard audio tool that allow one to rebalance the frequency content of a signal — for instance, attenuating the lowest frequencies to reduce rumble, or boosting a higher frequency area in order to enhance presence or brightness. This plugin in particular allows for unusually precise editing of microscopically narrow frequency bands. This allowed me to either boost, cut, or even remove individual partials.

Partials are the individual frequencies that constitute the overtones of a pitched sound. Almost all sounds that are perceived as a pitch do not consist of a single frequency, but many frequencies sounding at once, the balance of which gives that sound its particular timbre. These frequencies usually (but not always) occur in a specific series of frequency ratios, called the harmonic series. These are called partials, as they are the *parts* that make up a more complex sensation of a tone.

The ratios of the harmonic series can be grasped by considering a pitch of 110hz, or A2 in pitch terminology, shown in Figure 3. The frequency 110 Hz is then the 1st partial, or more commonly "fundamental," the second partial is 220 Hz, twice the frequency of the first, the third will be 330 Hz, or thrice the fundamental frequency. 440 Hz is the fourth partial, 550 is the fifth, 660 is the sixth, etc. These first six partials taken together have proportions of 1:2:3:4:5:6. Harmonic overtones can also be described as musical intervals in relation to the fundamental, as shown in Figure 3.

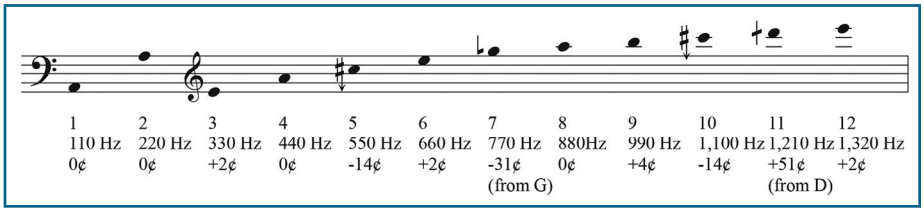
It is crucial to note that these overtone pitches, other than the octave, do not correspond exactly to the intervals used in the presently conventional tuning of 12 Equal Division of the Octave (12-EDO). These deviations, along with other microtonal intervals are often described in the unit of *cents*. A cent is a 100th of a 12-EDO half step; thus there are 1,200 cents in an octave. Some intervals, such as the perfect fifth found in the harmonic series, diverge by such small margins as 2 cents. Others, such as the Major third, have a more significant deviation of 14 cents. These deviations are also indicated in Figure 3.

SPECTRAL OBSERVATIONS CONCERNING THE VIBRAPHONE

As with any instrument, the relative presence of partials contribute heavily to the perception of the vibraphone's characteristic sounds, and simply changing their balance relative to each other can produce very different timbres from the same source material. This can be measured by using equalizers like the FFPro3, which provide a visual representation of a sound's frequency content, allowing one to see the extent to which various partials are present.

Prior to delving into my procedures for permutation, it's useful to provide some general observations about the spectral profile of this instrument, which was a Yamaha YV3710. Based on my subjective evaluations of timbre, I suspect that many of these apply generally to a large number

Figure 3. *The first 12 partials of A2, with frequency and cent deviation from 12-EDO, notated using the Extended Helmholz-Ellis accidentals for Just Intonation. Note that the rounding of cent values to whole numbers is approximate.*



of vibraphones; however, the finer specifics of these measurements could also vary considerably. A feature that immediately struck me is the near complete absence of lower harmonics as can be seen in Figure 4, showing an F-sharp3 played with a mallet, as seen in the spectrum analyzer of the FFProQ3.

The harmonic series features repetitions of the same pitch class an octave higher — that is, with a 2:1 frequency ratio. For instance, the fourth partial is the second partial an octave higher (same pitch class as the fundamental), and the 10th partial is the 5th partial an octave higher (a major third above the fundamental, 14 cents lower than 12-EDO). I noticed that these higher-octave iterations of pitch classes tended to be much more pronounced in the spectral profile of this instrument. As also illustrated in Figure 4, the fourth partial is much louder than the second partial, and similarly, the 10th partial is much louder than the fifth. In this example, the 10th partial completely dwarfs the fundamental in terms of volume.

Figure 4. *Spectrum analysis of F-sharp3 played with a mallet, the harmonic partials are labeled P1, P2, etc. Note that there is significant material between these partials. These constitute inharmonicity, which is discussed further in the main text.*

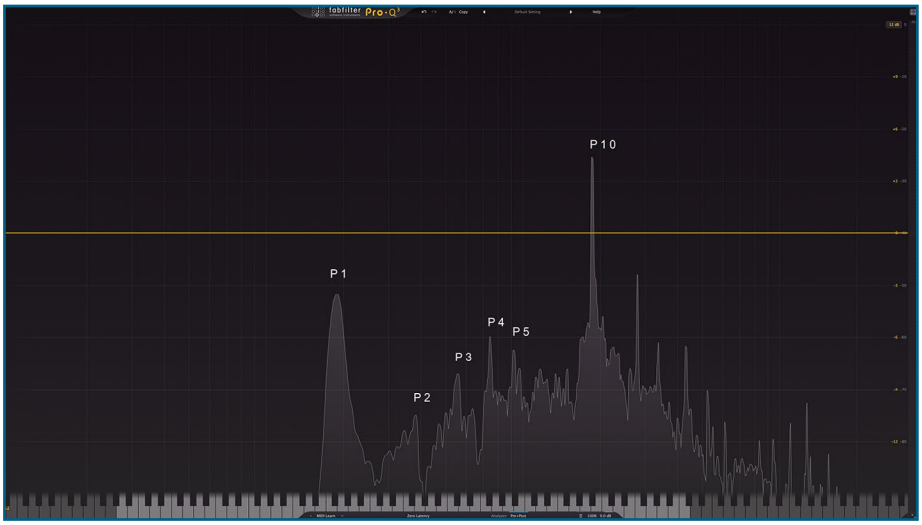


Figure 5. *Fundamental of F-sharp3 measured 23 cents higher than 12EDO*

This has significant ramifications for the tuning of the instrument, as the 10th partial will be more prominent than the fundamental; therefore, it is arguably most advisable to match its tuning to the intonation of other instruments rather than tuning the fundamental to 12-EDO. This seems to be the case on this instrument, where I measured the 10th partial in this particular example to be c. 4 cents lower than 12-EDO, while the fundamental is a full c. 23 cents higher. This is illustrated in Figures 5 and 6, showing the fundamental and 10th partial respectively isolated by a narrow bandpass filter, and measured using Ableton Live's stock tuner plugin. In this case, I suspect that the instrument manufacturer prioritized the intonation of the 10th partial due to its relative prominence. I kept this principle in mind as I sometimes repitched sounds during my processing, endeavoring to match the tuning of the most prominent partial to 12EDO/A=440, which is the tuning used in this piece.

As I was working with sounds produced with a variety of implements, I started to notice significant variations in the spectral makeup contingent on the means of sound production. This is particularly pronounced when bowing rather than striking the bars. In Figure 7. we see an example of the same F-sharp3, played with a bow. Strikingly, the fundamental is now significantly louder relative to the 10th partial than in the malleted Figure 4. This is illustrated in Figure 7, where other notable features are also present, such as the continued near absence of lower harmonics such as the 2nd, 3rd, 5th, and 6th partials.

TIMBRAL ALCHEMY VIA SURGICAL EQ

These observations are not particularly surprising, but as I trawled through these samples, looking at them in this EQ plugin while processing them, I developed an increasing awareness of how these unique

spectral configurations led to the different timbres the instrument can produce. I then used the precise capabilities of the FFProQ3 to significantly rebalance these spectral properties in order to change the sound of the instrument for use in the electronic track. One way I accomplished this was by using other sounds as spectral references for emulation. For instance, I took a recording of a singer producing a particular pitch and analyzed the relative volume of its partials in the FFProQ3. I then pulled up the same pitch in the bowed vibraphone samples, and rebalanced the partials from 1-c.40 to match the overtones of the singer as closely as possible. This, of course, did not sound exactly like a singer, but produced something that retained a vague resemblance to the bowed vibraphone, while sounding somewhat like a synthetic voice. I repeated this process with several other sound sources such as synthesizers. Simply using an equalizer, I was able to drastically reshape the sound of the instrument by focusing on the unique relationships between overtones.

Figure 6. *10th partial of F-sharp3, measured 4.2 cents lower than 12-EDO*

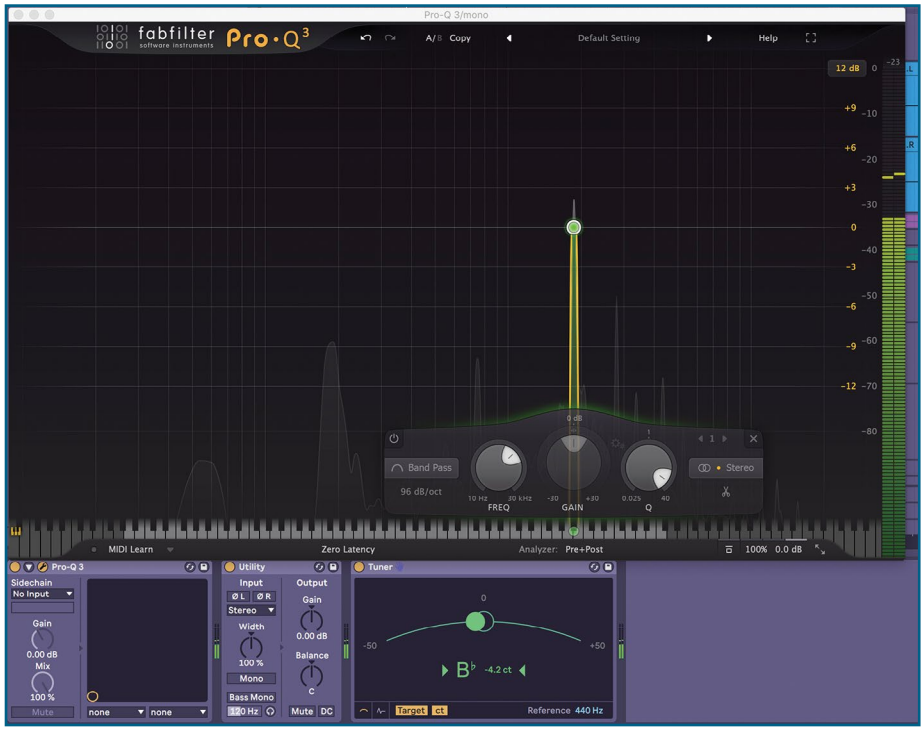
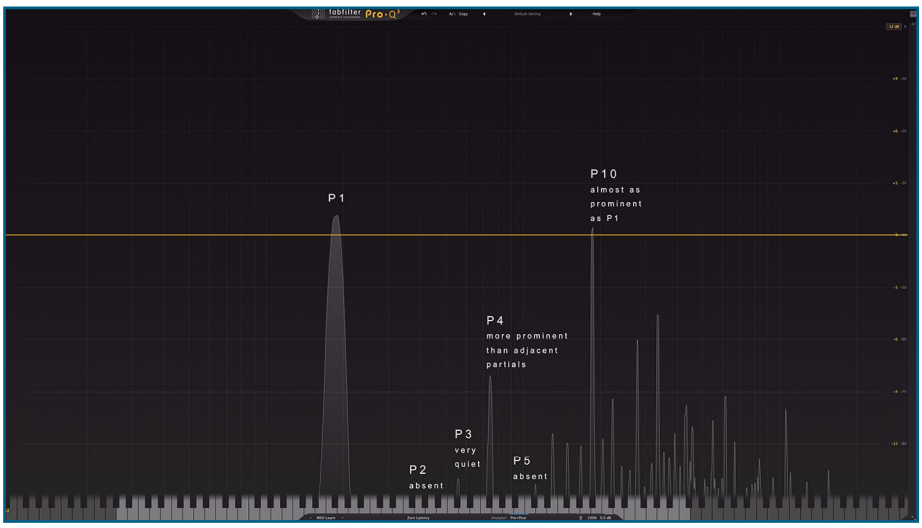


Figure 7. *F-sharp3 played with a bow. Note the relative equality in volume between the fundamental and 10th partials. Additionally, the non-harmonic material between partials, prominent in Figure 4, is absent.*



SAMPLING SINGLE CYCLES FOR WAVETABLE SYNTHESIS

Another technique I found fruitful was sampling single cycles of the vibraphone waveform and using these as custom *wavetables* in the Serum softsynth plugin. By zooming in on a vibraphone pitch as far as I could in Ableton Live, I could isolate one cycle of the waveform and render it as its own audio file, which I could then drop into Serum as a wavetable and further modify using the envelopes and filters in the wavetable synthesis software. Wavetable synthesizers produce sound with their oscillators, which quickly repeat a waveform at the frequency required to produce the desired pitch. The rate of oscillation determines the pitch (if the pitch A4 is played on a keyboard, the oscillator will oscillate 440 times a second, that is, 440 Hz, while the shape of the waveform being oscillated determines the timbre. I found there was a subjectively perceptible connection to the vibraphone timbre I was using as source material, while the result also sounded digital and synthetic due to its repetition of a single cycle in the wavetable synthesizer. An example of one of my custom wavetables produced in this manner is shown in Figure 8.

In addition to these techniques, I used a variety of other processing procedures including relatively straightforward ones such as reversing sounds or running them through effects like reverb and delay. I also made long, sustained sounds out of previously short ones using the Paulstretch software, which is able to slow audio down by absurd proportions, such as 800 times slower. I would take a mallet hit, slow it down by tens or hundreds of times, and then grab a small snippet of the resulting file. I could then process this resultant file further before dropping it into Kontakt to create a new MIDI pad instrument.

JUST INTONATION, AND SPECIAL CONSIDERATIONS REGARDING INHARMONICITY

As alluded to above, my spectral investigation of this instrument contributed significantly to my interest in Just Intonation (JI), which tunes pitches to match the tuning of harmonic overtones exactly, by only using whole-number frequency ratios for musical intervals. Spending so much time observing, isolating, and listening to the overtones of the instrument led me to develop an interest in matching those overtones in the harmonic structure of the composition. This effect can be accomplished by using JI, as the whole-number frequency ratios definitionally employed in JI accord exactly with many of the whole-number ratios found in the harmonic series.

However, as I continued editing the vibraphone samples, I also noticed the phenomenon of inharmonicity, which is a significant factor in perception of an instrument's timbre. Inharmonicity refers to overtones that deviate from the harmonic series. This can take the form of overtones that closely resemble, but nonetheless deviate from, harmonic partials, or overtone pitches that don't even vaguely approximate harmonic relationships to the fundamental. Inharmonicity is occasioned by a variety of physical factors that are well beyond the scope of this article. Suffice to say that vibraphone overtones exhibit varying degrees of inharmonicity, depending on the means of tone production as well as the particular construction of the individual instrument.

I observed that bowed sounds exhibited a significantly lower degree of inharmonicity than sounds produced with a striking implement. This is particularly relevant to consideration of JI on the vibraphone, as in my subjective evaluation, a principle benefit of JI is the accordance of harmonically related pitches with each other's overtone content. When an instrument's overtones deviate significantly enough from the harmonic series, this interlocking effect is less pronounced. Therefore, when dealing with inharmonic timbres, the logistical hurdles involved in composing and performing music in JI become less worthwhile. The above examples of relative overtone volume and inharmonicity are not exhaustive, but give a cursory overview of the spectral factors at play.

Figure 8. *A single cycle of a bowed vibraphone waveform used as a custom wavetable in Serum*

FUTURE DIRECTIONS FOR JUST INTONATION VIA PREPARATION

While working with this material, I became increasingly drawn to the possibilities of JI, and I pursued ways to incorporate it into this work. While workshopping the piece, we discovered that preparing the vibraphone bars with blue tack putty, which is often used as a piano preparation, can lower the pitch of the bar. However, it significantly dampens the timbre of the prepared bar, leading to less sustain and reduced presence of higher frequency partials. We decided not to pursue that technique in this piece due to its reliance on sustain from the instrument. However, the concept could be viable if a composer began writing with that intention from the beginning, incorporating the altered timbre.

More recently, I corresponded with percussionist Chris Sies, who helped me enact some experiments with this putty technique. Chris found that placing putty beneath the bar, as close to the center as possible, produced the best result in terms of range of pitch shifting, minimal dampening of sustain relative to other placements, and playability of the instrument. This placement is shown in Figure 9, supplied by Chris. In this instance, Chris was able to lower the pitch of the bar by 75 cents. The dampening effect became more severe higher in the instrument's register.

Chris tried bowing the prepared bars, which allows for increased sustain; however, unlike unprepared bars, the putty-prepared pitches only sustain while actively being bowed. These effects can all be mitigated by using less putty, which of course corresponds to less lowering of pitch, but any amount of putty does produce reduction of sustain and attenuation of higher partials. Overall we came to the conclusion that this technique requires intensive setup and unique considerations, but is ultimately viable, and much

more practical than the alternative of specially-constructed instruments.

Beyond this, I would like to continue to imagine and develop ways in which I feel JI could be implemented on the vibraphone in a musically satisfying yet practical manner. Since 2019, I have used JI in several pieces, and find it very pleasing and commensurate with my compositional philosophy and goals.

The following are general considerations involved in composing in JI. It is necessary to choose between limiting oneself to one or two key areas, or using far more than 12 pitches in order to adjust pitches by small intervals called commas in order to allow them to function in various harmonic contexts. Using a fixed-pitch instrument like the vibraphone, it would be apt to take the former approach, as minute comma adjustments mid-performance are either deeply impractical or impossible. This is not an issue for me, as my compositions are often limited to a single diatonic key area, as is the case in "it comes in waves."

Figure 9. *Example of putty preparation on the lowest F. This amount of putty produced a lowering of c.75 cents.*

A few obstacles and extra considerations should be taken into account regarding use of JI for the vibraphone. Principally, I find JI to be more beneficial when sounds are sustained so we hear harmonically related consonant pitches lock into their whole-number ratios, producing a smooth tone with no beating. With sounds that die away quickly, this effect is scarcely perceptible. However, it is possible to produce sustained, harmonic sounds on a vibraphone, even one prepared with putty, by bowing two bars simultaneously to produce dyads. Additionally, if used in conjunction with other forces, such as electronic accompaniment or sustaining instruments like bowed strings, even the less resonant plucked sounds of the putty-prepared instrument being played with balls or other striking implements could still be quite effective when matching the tuning of these sustaining instruments, which contribute the particular harmonic characteristics of sustained just intervals.

Figure 10. *Standard tuning of a JI C Major scale, using 12-EDO C as the unaltered reference. Extended Helmholz-Ellis notation is used.*

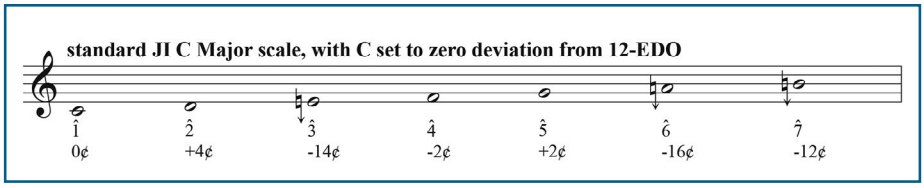
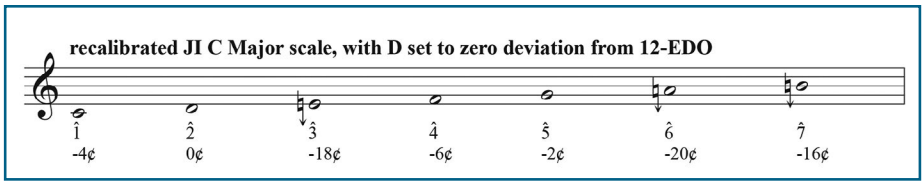


Figure 11. *Recalibrated tuning of a JI C Major scale, lowering all cent deviations in order to eliminate the need to raise any pitches.*



The previously discussed inharmonicity of the instrument is another issue due to upper partials being extremely prominent in some vibraphone sounds. If those partials are significantly inharmonic, the effect of Just tuning would be less pronounced. However, based on my limited data set, two elements will mitigate this: the dampening effect of the putty, which reduces resonance of upper partials, and the use of bows, which reduces inharmonicity. The Just tuning of the instrument via preparation could be extremely effective when employing this means of tone production.

The last consideration, which requires some degree of competence in tuning theory, is that it is only possible to lower the pitch of a bar and not raise it. Many Just intervals, however, require raising a pitch relative to its 12-EDO value. There is a relatively straightforward solution to this problem, which is to create a scale in which the most-raised intervals are calibrated as 0 cent deviation from 12-EDO so that no raising of pitch is necessary.

For instance, let's imagine a C Major scale tuned in JI. As shown in Figure 10, the second degree should be 4 cents higher than equal temperament, and in this particular example, this is the highest value by which any pitch must be raised. Instead of raising the second degree by 4 cents, we could instead subtract 4 from the deviation required for every other degree. This recalibrates the second degree as 0 cent deviation from 12-EDO, and therefore requires no actual raising of pitch. This recalibrated scale is illustrated in Figure 11. In this way, we preserve the proportions of the scale while only lowering the pitch as is technically achievable.

These tuning considerations are principally the responsibility of the composer when designing their piece, and instructions may then be given to the percussionist regarding how much putty to use to detune each bar with reference to a tuner. Finally, it should be remarked that the timbral change resulting from the putty preparation is not homogenous. Certain pitches — for instance, the third

degree in the above scale — will require much more putty to be lowered to the desired value than the second degree, which will require no putty at all. This issue is, in my opinion, completely acceptable. It simply requires extra consideration from the composer.

If I were to be writing a piece using this method, one of the first things I would do is collect samples of the instrument prepared in this way, which I would then use to create a Kontakt instrument to refer to while creating my mockups. Such an instrument could easily be loaded in notation software in order to write the piece using the actual sounds of the prepared instrument. This discrepancy in resonance between bars could be compositionally very interesting, but it is something that I would want to be able to hear while working. An even better solution would be to have direct access to a prepared instrument with which to compose.

CONCLUSION

In conclusion, this is an overview of the things I learned while writing this piece as well as reflections on concepts that I felt were not prudent to implement in this case. I deeply enjoyed working with Gloria on this piece and have continued with a series of pieces that are constructed with this concept of using one instrument combined with samples of itself. The observations I make while processing these sounds are dramatically influencing my conception of composing, and the properties of music more generally. I hope that some of these observations will be interesting and inspiring to composers, performers, and music enthusiasts of any persuasion.

it comes in waves

Samn Johnson (he/they) is a composer, producer, and historical linguist, working in an eclectic style integrating ethereal electronics with contemporary classical composition, early music, ancient languages, and non-standard tunings. His work draws on a pre-modern aesthetic and symbolic vision, where numbers, reference, and history have allegorical and cosmological meaning. This aesthetic largely bypasses Western classicism and lives alongside musical styles of the present in a surreal kaleidoscoping of time.

Samn is interested in acoustics and works closely with instrumentalists and singers to understand and apply the sounds they love to make. In Samn's vocal music, they harness scholarly research on historical phonology to revive the sounds of languages like Latin, Old English, Hittite, or Gothic. Samn studied composition at the University of Michigan at Ann Arbor and at NYU in New York City. His private teachers include Julia Wolfe, Robert Honstein, Evan Chambers, and Kristin Kuster. Samn currently lives and works in Kalamazoo, Michigan. His scores are available at *www.samnjohnsonmusic.com*.

Online Collaboration, Then and Now: An Interview with Allan Molnar

By Kurt Gartner

For as long as I have known him, Allan Molnar has been an energetic advocate for online musical collaboration. For nearly 20 years, he has been using online tools to enhance his teaching, performing, and networking. He was a co-founder of the ALIVE (Accessible Live Internet Video Education) Project, and he has used video conference platforms to bring musicians, students, and live audiences together in countless lessons, rehearsals, concerts, and other activities and events. Today, he continues to explore the latest platforms and the possibilities they create. Recently, I spoke with him to revisit his experiences, past and present.

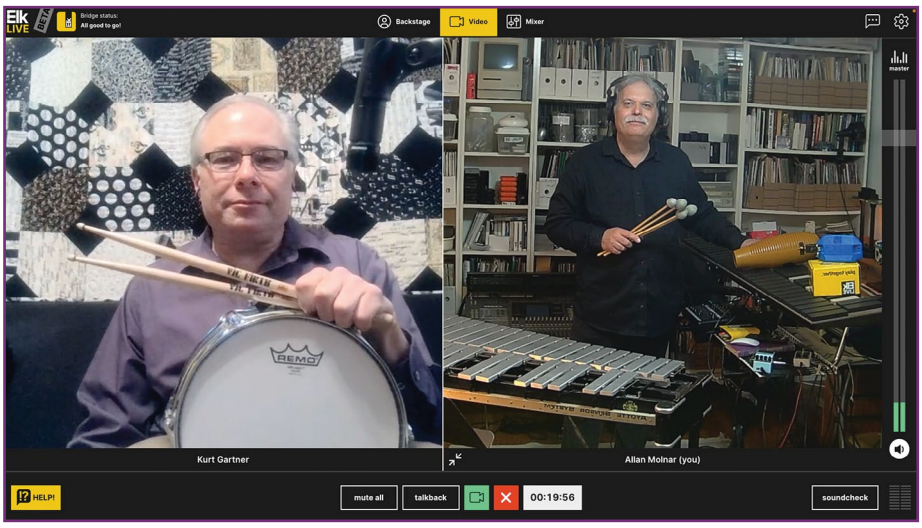
Kurt Gartner: How did you begin to collaborate online?

Allan Molnar: I jumped into the world of online collaborative teaching and performing very unexpectedly. This all began early in 2004 after I had moved to New York from Toronto. At that time I was working as a sub in a music education program at a college in New York City.

I continued to stay in touch with my colleague and long-time friend Stewart Smith, who at that time was teaching middle school band in Winnipeg, Manitoba. Stewart and I were searching for a creative music-based project that we could explore together via the internet. And lo and behold, we discovered Apple's relatively new iChat webcam and video conferencing platform. The iChat platform was extremely accessible in both cost and use, and this accessibility solved a major challenge I was facing with my college students. My music-education students were in the first days of their experience as student teachers, but they had not yet taken a brass methods course.

I successfully taught band for 20 years in the Toronto K–12 school system, but I'm a percussionist who doesn't really play brass instruments. I studied brass and woodwind methods back when I was in college, and I became reasonably proficient in these areas, but it's always much better if music-education students are given the opportunity to study methods courses with specialists in each area. Fortunately for me and for my students, Stewart Smith happens to be a brass specialist, so it was "game on!" I video conferenced Stewart into my classroom at the college, and together we taught an efficient lesson on brass instrument techniques. Stewart was in Winnipeg, I was with the students in New York, and this online

Elk Live session with Kurt Gartner and Allan Molnar



brass masterclass also proved to be a successful demonstration of the art of team teaching.

Gartner: Where did it go from the student teaching and the interaction with Stewart?

Molnar: Our first video conference project worked really well, and I was very happy to have had the opportunity to bring this cutting-edge technology to the attention of my music-education students back in 2004. Little did we know that we would one day discover the true long-distance value of this project during the pandemic beginning in 2020. Stewart and I knew that we were able to successfully teach music over the internet in real time. How about if we do some playing? Of course, there's that pesky little issue of audio and video latency, and as great as Apple's iChat platform was, it wasn't designed to manage the requirements of online, real-time collaborative musical performances. We had to find another way to make this work.

My home studio was already outfitted with a malletKAT, a vibraphone, and all kinds of keyboards and MIDI gear that I could use for creating interesting backing tracks for my solo vibraphone performances. Stewart and I selected a few tunes that I then arranged for vibraphone, MIDI backing tracks, and band instruments. The next step was to beam in and perform with Stewart's middle school students via iChat.

We would begin our sessions with verbal interaction to prepare the students to play, and then follow up with a shared musical performance. We worked this out in such a way that the performance itself wasn't actually a true two-way musical collaboration. I would simply begin playing, and when my audio and video signal arrived in Stewart's classroom, the students would begin playing along with me. In order to avoid feedback of my audio signal, Stewart would mute the microphone on his end when he was ready to begin playing. Stewart and the students could hear me, but I couldn't hear them. This is where our team-teaching model really began to work. In a sense, the perception on their end was that we were indeed playing together in real time. I was in New York, they were in Winnipeg, and everything was in sync.

We repeated this process a number of times, including our first duet performances at a high school jazz festival that took place around that time in Melville, Saskatchewan. This festival was run by band director, Tom Hearn, a friend of ours from our high school days in Saskatchewan. Stewart was there as a teacher, and I beamed in for the final concert. This strategy worked very well, and our collaborative efforts proved to be the music education experience that efficiently lit the fuse for new things to come.

The first high-profile move that I took with this crazy concept of playing music together in real time over the internet traveled from the heartland of America, and across the Atlantic ocean to its final destination, Stockholm, Sweden. Anders Åstrand invited me to give a presentation on distance learning at the October 2004 PAS Day of Percussion in Stockholm, Sweden. I was thrilled to receive the invitation. I also wanted to perform at the event, so I requested access to a vibraphone and promised to take care of bringing the musicians to the gig. With the help of Apple's iChat, I was able to follow through by bringing the musicians to the gig in my laptop! And — as you know, Kurt — that group of musicians just happened to be members of the 2004 Kansas State University Latin Jazz Ensemble under your direction. Anders was a terrific host and had all of the necessary requirements in place.

Gartner: Let's fast forward nearly 20 years, toward the present and catching other bits along the way. How is the collaborative online landscape different now? How have you been collaborating since then?

Molnar: For one thing, my internet connection is definitely much faster than it was 20 years ago. Also, I think the pedagogical challenges music educators had to face during the pandemic lockdown may have accelerated the research and development needed to find an efficient way to make real-time online performances a reality. I've tried many of the new and emerging platforms, and I greatly appreciate the hard work that went into developing these platforms. It was all a matter of finding the right platform. My list of co-collaborators has been growing ever since I settled on my platform of choice.

Gartner: Please comment on some of the currently available platforms and their intended uses.

Molnar: I think the best use if this technology needs to be determined by those who have embraced the process. It's really up to us. We're professional performers, educators, hobbyists, etc. Personally, I'm a vibraphonist, drummer/percussionist and educator. Piano is a secondary instrument for me, and as a pianist in need of much improvement, I've been collaborating with an accomplished flutist and friend named Connie Grossman. She also wants to improve certain aspects of her playing, so we have been setting up Elk Live practice sessions occasionally. It's been very productive and great fun! Ever since 2004, I have been collaborating on similar projects with more talented performers and educators than I can remember. My list includes pianist Anthony Panacci, percussionist Bob Meunier, and saxophonist Glen Hall, just to name a few.

Gartner: To make a distinction regarding Elk Live, there are other online applications that allow musicians to collaboratively track recordings, but those are not real-time activities where multiple musicians are tracking at the same time.

With Elk Live, you're talking about real-time synchronous performance over distance, right?

Molnar: That is correct.

Gartner: So Elk Live is your platform of choice these days?

Molnar: Yes. The platform is set up to emulate a standard digital audio workstation that allows each participant to customize their own audio mix. Access to video and other important functions are well designed and easy to use. Elk Live also includes an optional audio interface called the Elk Bridge. This interface has its own operating system that mitigates audio latency and sends the audio signal directly to the router, independent of the computer via ethernet. All of the component parts then somehow meet up with each other and provide us with the experience of playing together. I'm not a tech expert, so this description is my best guess.

It works incredibly well. I have had one-on-one collaborative performances with colleagues from as far away as 1,400 miles. And that was accomplished with minimal audio and visual latency. Another thing I like about this platform is the physical setup. Simply put, it feels like we are all performing in our own recording studio isolation booths.

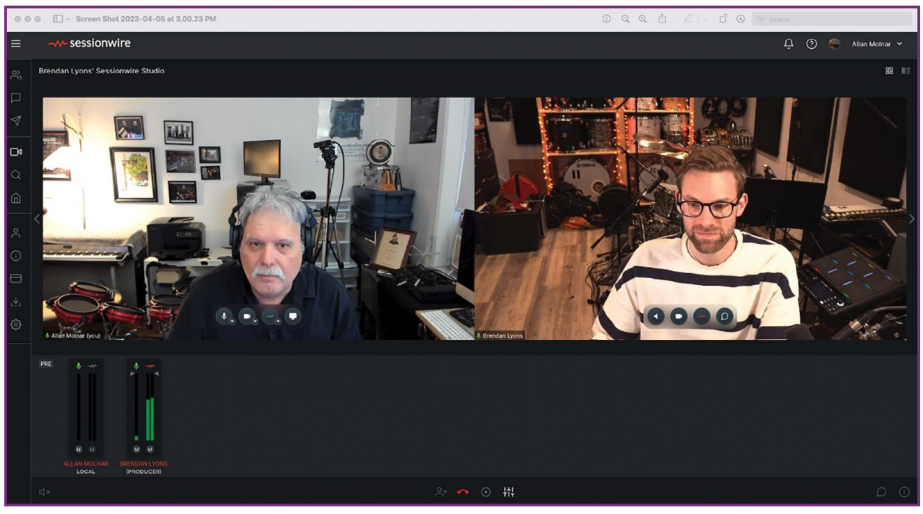
Gartner: Are there limits as to how many participants can be involved from distinct locations?

Molnar: At this time, the number of participants seems to be capped at five. I believe there's a plan to extend the limit, but for now, an online quintet is quite satisfying!

Gartner: When you are in the Elk Live environment, how is the video handled, and how important is the video quality to you? Is the video latency distinct from any audio latency?

Molnar: I've had good luck with this. I have a pretty robust system at home, and that helps. And from the perspective of considering a collaboration to be a success, I start with the audio. If we can hear each other clearly and the audio is completely in sync, then I consider that to be a good session. In my experience, the video itself has usually been in sync, but when there's a little bit of latency, it doesn't really interfere as much as one might think. Here's how I see it: sometimes, there will be noticeable latency up on the big-screen video feed during concerts that take place in large stadium venues. I don't think that really makes a huge difference for the audience as long as the audio remains in sync. Good music is good music!

Sessionwire collaboration with Brendan Lyons and Allan Molnar



Gartner: It seems like this platform would be well suited for getting musicians together at remote points and rehearsing — preparing something. Is there a pathway to make a real-time collaborative performance like this a public event?

Molnar: Yes, that is definitely feasible. I believe this feature is in the plan for Elk Live. Current third-party options include OBS, a pathway to Youtube and Facebook.

Gartner: You mentioned that the Elk platform requires their hardware, the Elk Bridge. Is that correct?

Molnar: The Bridge unit is designed for optimal use, because of its very unique way of handling the audio. However, it should be noted that at the time of this interview, Elk has just released a native Elk Live app that works with any audio interface. I think this is going to be a great thing, because it's going to provide a lot of interested musicians with the opportunity to jump in and give it a try without having to make an initial investment in the Elk Bridge. I'm excited about this, because it opens up the market for so many musicians. Personally, I've bought nine of the Bridge interfaces. I'm redesigning my home studio right now to make this work in a variety of ways so I can play a variety of instruments. I'll probably end up using three different Elk Bridges simultaneously for different performance spaces that I have set up in my home. I also plan to lend my colleagues my Bridge units so they can compare this interface to the native app approach before purchasing. I think it's going to be really exciting to see what we can do with this new app, and I'm looking forward to inviting many of my friends and colleagues into my circle of Elk Live users.

Gartner: Describe the Elk Bridge interface and its types of connectivity.

Molnar: The connectivity is very standard, like every other audio interface

that's out there. It's got quarter-inch and XLR inputs and a pair of stereo headphone jacks. Additionally, it's got a MIDI interface and ADAT capability for light pipe audio transfers. The main difference with the Bridge is the presence of its unique operating system. So it's quite versatile. For more detailed info, I recommend a visit to *www.elk.live*.

Gartner: Who have you been working with on the Elk Project?

Molnar: For the most part, I have been exploring Elk with colleagues who are based here in the New York area — notably, flutist Connie Grossman and guitarist/bassist Alejandro Castro. I'm also exploring Elk with my good friend and colleague Aldo Mazza from KoSA. He's in Montreal, which is close enough for us to make this work from my home in New York. Aldo first introduced me to the Elk platform, and we've been brainstorming ideas for developing interesting projects ever since. Aldo was also one of my regular collaborators on my 2004 projects, and he has been greatly supportive of the growth of online collaboration by including it at KoSA events ever since day one. Aldo has also been promoting the use of Elk Live via his new podcast series called *Shaping Your Journey*. The percussion community is definitely a great place to explore innovative, out-of-the-box ideas.

I've also been collaborating with George Newman, CEO and Founder of the One Planet Education Network. The vision here is to bring the Elk Live technology to schools worldwide. Ignacio Rivas Bixio has been working with George for many years and is also an important part of this project. I asked George to send me a summary of his plan so I could read it into this interview:

OPEN, an international education and technology company has partnered with Elk to bring Elk to classrooms, professional musicians, and music education programs around the world. Beginning in the U.S. through a partnership with Crocodile River Music, OPEN next plans to bring Elk remote performance magic to its schools in Africa, Australia, East Asia, the Caribbean, and South America. The music teachers are intrigued, and students excited about the prospects of playing with other schools and remote musicians in real time, as if you are all together in the same studio!

Combined with OPEN's programs in cross-cultural co-songwriting, Elk-equipped musicians can blend different sounds to create unique forms of music. In OPEN and Elk's vision, concert halls and performances too will benefit, as musicians join and play in real time from remote locations within the wide geographical boundaries of Elk's systems.

Needless to say, this is an exciting project, and George and Ignacio just happen to be excellent drummers!

Gartner: I understand that you also use Sessionwire for online collaboration. Could you describe it?

Molnar: Sessionwire is an amazing platform that is designed for, among other things, audio engineering recording sessions in real time over the internet. This company is based near Vancouver, British Columbia, Canada. I am quite new to this platform, so right now I'm just doing my best to ascend the learning curve. I encourage you to check out www.sessionwire.com.

Sessionwire is compatible with all DAWs, and the platform itself continues to evolve with the ongoing development of exciting production features. My main contact at Sessionwire has been Edmonton Alberta-based Brendan Lyons. He is an expert in every DAW you can think of, and he does a great job creating the support videos and providing realtime support via the Sessionwire video conference component of the platform. And, he just happens to be an excellent drummer!

Based on my experience so far, I believe that Sessionwire will be a valuable asset to the highest level of professional recording studios and equally valuable for music education programs and home studios everywhere. It should be noted that Sessionwire is a very different platform than Elk Live. I am beyond fascinated by the opportunities these two brilliant platforms bring to our music education and music performance professions. The possibilities are endless!

Kurt, Thank you for inviting me into this discussion for *Percussive Notes*. It's truly amazing to review and discuss the innovations that we have been hoping for since our first collaborations back in 2004. It's equally exciting to imagine what might develop in the next 20 years. It's hard to say what is in the future, but I am quite sure that you and I will be exploring everything that comes our way in the years to come.

Kurt Gartner is Professor of Music and Associate Director of the School of Music, Theatre, and Dance at Kansas State University. He is Technology Editor for *Percussive Notes*.

A Start on the Right Path: Maintaining Healthy Habits as a Student

By Aurica Rising

It can be tough transitioning into being an undergraduate student and figuring out the right schedule for yourself. I am sure many of us have looked at our life and questioned if it was in balance. It can be hard to find a good balance in our day-to-day lives and manage stress when trying to balance a few jobs, adequate sleep, relaxation time, and the biggest struggle: a good breakdown of practice habits and scheduling. So, how do we balance all these things and why should we? Proper sleep, diet, and relaxation can help with maintaining good health. Reliable time management can help with performance, and efficient practice habits can help with avoiding burnout or boredom.

Let's discuss these four topics: sleep, diet, time management, and relaxation. As incoming undergraduate students, these four areas can be hard to manage, and it is difficult to organize these with little previous experience.

At first, it is normal not to know where to start or who to talk to. If you were taking private lessons in high school, then you could have spoken to your teacher to receive some tips. However, not everyone has had that luxury. If you are in college, you can now talk to your instructor or primary advisor, who can help guide you for the next four or more years of your degree.

One of the college instructors I spoke with stated that scheduling is a primary objective for helping students stay on track. This means sitting down and discussing with the students their weekly schedule and how to balance their day-to-day lives. It may not be fun or easy to manage, but you will reap the rewards of these efforts.

I have found sleep, diet, relaxation, and time management to be highly effective in ensuring that I am on top of my schedule and have enough energy to be in control of my heavy workload. Sleep and diet are the first places I would start.

GET SOME SLEEP

Without enough sleep, we cannot function fully and stay focused. This may lead to a loss of motivation and an increased possibility of making more errors in our work and practicing. Ideally, it would be a good goal to get seven to eight hours of sleep each night. Keeping this consistent sleep schedule allows our bodies to keep a routine and therefore be more efficient.

WATCH WHAT YOU EAT

Maintaining a good diet is great way to make sure that your body stays fueled for whatever life may throw at it. With often crazy and inconsistent schedules, it is easy to grab what is convenient instead of what is healthy. Meal prepping is a fantastic way to prevent impulse eating. I have found it helpful to prepare a healthy lunch and dinner for each day of the week on Sundays.

In the morning, it may be difficult to find the time or energy to cook. To combat this, I keep some simple and healthy items on hand that I can easily heat up. I pack those meals and some healthy snacks to leave at school so that they are easily accessible. Thinking ahead and having grab-and-go foods allows me to take control of my eating, even when my schedule becomes inconsistent.

ORGANIZE YOUR TIME

Time management is often the hardest to plan. It takes time to try out routines and to find one that suits each of us. The problem is, we often cannot stick to those plans, or we get bored, or we are just lost on where to start. This is another situation where you could go to your professor for guidance. At the beginning of the semester, ask your professor to sit down with you and figure out what schedules or practice habits can work well for you. Getting input from someone with a bird's-eye view can make you more likely to stick with your routine.

Try writing down your schedule to help you stay on track. Every semester, I make my daily schedule on an Excel spreadsheet. I start by filling in where I

have required courses or lessons. Next, I fill in specific times to eat lunch to ensure I am eating regularly and have a break. Then I start filling in practice slots, which you can see in the accompanying chart. Spreading out your practice times throughout the day is an effective way to ensure you are not overwhelmed. For example, on a Monday, I will schedule three different practice times in the day.

The second part of time management is managing your time in the practice room. Breaking things down and writing the specific amount of time you spend on each piece can help give structure and direct your practice session to be more productive. For example, my current schedule entails finding three hours a day to practice all the music I have. When I break this down daily, it means that I find three separate hours in the day, spaced out from each other. Then I choose what I am playing each hour. For the first hour, I focus on marimba technical studies or warm-ups for 15 minutes, and then I play my repertoire for the last 45 minutes. For the second hour, I do snare technical studies or warm-ups for 15 minutes and then spend the other 45 minutes on repertoire. Then for the third hour, I spend time working on ensemble music and technical studies on other instruments that I may be currently learning in lessons or ensembles.

DON'T FORGET TO RELAX

The last important step in maintaining healthy habits is the management of free time. There needs to be time in the week when we can relax or do something fun that is not school related. Without this, we can be overwhelmed from dealing with school day in and day out. This is also where professors can help when you are struggling. One of the professors I spoke with stated that they make sure to plan out free time with their students when making their daily schedules. They ask their students when there is a suitable time for them to relax and what they could potentially plan for entertainment.

Another thing this professor does for students is plan events with the whole studio. Examples include going to the park, playing games, and just hanging out. Not only does this create fun ways to relax, but it also helps to build relationships in the studio and encourages students to connect with each other. Students can then find activities to do with their peers as well.

Personally, it is difficult for me to find free time during the week, so I make sure to not schedule events or work on Saturday evenings. I will go out and eat something fun since I have prepped meals all week, and I will usually play video games, draw, or catch up on my favorite shows.

PUTTING IT ALL TOGETHER

Being an undergraduate student can be difficult in the beginning when learning how to adapt to busy schedules and being on your own. Suddenly, we oversee our own schedules and decisions. When starting this journey, it is important to apply these four areas to our daily lives: sleep, diet, time management, and relaxation. Keeping up with these will help us to have a more successful and enjoyable time in school.

Fall 2022	MONDAY	TUESDAY	WEDNESDAY	THURDSAY	FRIDAY
7:00	Breakfast	Breakfast	Breakfast	Marching Band Teching	Breakfast
7:30					
8:00	Practice #1	Practice	Practice		Practice
8:30					
9:00	Break	Break	Break	Driving to School	Break
9:30	Ped of Music Theory	Homework	Ped of Music Theory		Ped of Music Theory
10:00				Practice	
10:30	Homework		Break		Practice
11:00		Practice	Practice		
11:30	Practice #2				Lesson
12:00				Break	
12:30	Lunch	Lunch	Lunch	Lunch	Lunch
1:00				GA Meeting 1:15	
1:30	Practice #3	Studio	Practice		Practice
2:00					
2:30	Homework/ Break	PO	Homework	PO	Homework
3:00					
3:30	Drumset Class 1	Homework/ Practice	Drumset Class 1	Homework/ Practice	Time for anything else I need to do
4:00					
4:30	Drumset Class 2		Drumset Class 2		
5:00					

Aurica Rising is currently finishing her master's degree in Percussion Performance at the University of Oklahoma. She holds a bachelor's degree in Music Education from Southwestern Oklahoma State University. Aurica is also the Director of Percussion at Tuttle Public Schools. She has experience coaching percussion ensembles, marching band, teaching collegiate-level courses in percussion, and running her own student orchestra. She can be reached at *Aurica.rising-1@ou.edu*.

Flower-drum Lantern

By WanNing Chen

I was born in Anhui, the hometown of Huagudeng (Flower-drum Lantern), and since I was a child, I have been deeply attracted to the dance and percussion sounds of the Flower-drum Lantern — a traditional performing art that originated on both sides of the Huai River in the Anhui Province of China. It is estimated that the origin was in the era of Dayu in ancient times (2070 BCE–1600 BCE), but it also existed in the Song (960–1279), Ming (1368–1644), and Qing (1636–1912) Dynasties. It is a representative folk performing art form of the Han nationality that includes Dance, Lantern Song, Drama, and "Gongs and Drums Music." It is one of the national intangible cultural heritages.

Flower-drum Lantern is usually performed during the harvest years, temple fairs, and spring festivals. The male character part of Flower-drum lantern is called gujiazi (Drum Frame), and the female part is called lanhua (Orchid). Performances are often held in public squares. Generally, it consists of four parts: dance, singing, "backstage" opera, and "gongs and drums" performance. The dance also includes dahuachang (Big Flower Field), xiaohuachang (Small Flower Field), pangu (Pan Drum), and other parts.

"Big Flower Field" is a collective emotional dance that can be performed by upwards of ten people. "Small Flower Field" is a duet or trio dance that mainly shows the scene of young men and women talking about love while playing. It has a simple plot and characteristic dance known as "Grab the Towel" and "Grab the Bench." "Pan Drum" is a performance form that combines dance and martial arts, and has the characteristics of plastic arts. "Backstage" opera is a combination of song and dance, such as "Pushing the Trolley" and "Little Man."

"Gongs and Drums" are an important part of Flower-drum Lantern. The gongs and drums team usually consists of seven to nine musicians. The musical instruments are mainly flower drums, big gongs, big cymbals, crispy gongs, small cymbals, and a few more instruments.

Flower-drum; huagu

Large gong; daluo

Big cymbals; dacha

Small cymbals; xiaocha

Crispy gong; cuiluo

The Flower-drum plays a leading role in the "gongs and drums" band. The drum's shape is similar to the Tang drum used by the opera band, except that the drum body is slightly longer. Typically, the flower drum is about 37cm long, while the drumhead is 23cm in diameter and the drum belly is about 28cm in diameter. The two rings of the flower drum are installed on the same straight line slightly behind the two drum nails, and the two rings are tied with a red silk belt.

When performing, the silk belt is slung over the right shoulder so the drum sits on the left side of the waist. The left hand plays on the front head from above, and the right hand plays from below. With the drum held like this, the performer can freely play while walking, sitting, standing, retreating, and even jumping. The drumstick is about 23cm long and is as thick as a finger. Different volumes and timbres are achieved through a variety of techniques such as pointing, wheeling, kneading, rubbing, stuffing, pressing, picking, and rolling, among others.

The large gong, with its high volume and low tone, may be adapted to the needs of the square performance. The diameter is generally 40–60cm. Since the gong is heavy, performers attach it to their left shoulder with an S-shaped bamboo branch. The lower end of the S-shape is fixed on the belt behind the back, and the upper end is bent over the shoulder. A curved hook is installed about 50cm in front to fix the gong in place. The curved part is decorated with flower branches. When performing, the performer holds the gong belt in the left hand and plays it with a gong beater in the right hand.

The big cymbal's diameter is about 32cm, and it is preferred if it has a deep middle frequency. When playing, the tie is put on the player's wrist and the cymbals are hit together. The big cymbals usually follow the pattern of the big gong, but they can also be hit lightly or strongly and can be let to ring or muffled to make them sound different. It also has its own special pattern, playing primarily on weak beats.

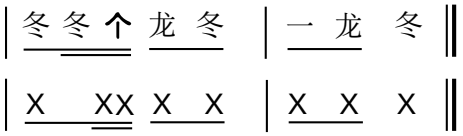
The small cymbals, 14–18cm in diameter, use a pinch belt or tie belt on the finger. The small cymbals strike every beat, playing the role of the beat keepers.

The crisp gong, commonly known as the "puppy gong," mimics the sound of a barking dog. The diameter is about 15cm, and the surface of the gong is slightly raised towards its center, which is 6cm. It has various timbres ranging from high to low. When played, the gong is gently pinched on the edge with the left index finger and thumb, and the center of the gong is hit with the right hand. The number of people on this part should be as large as possible, but a minimum of three people is necessary.

The "Gongs and Drums" section is mainly divided into two categories: changmianluo (Scene Gongs) and dengmianluo (Lantern Gongs). "Scene Gongs" refers to the independent performance of "Gongs and Drums," mainly used during street walking and parades. The structure is usually fantou–fanzhong–fanwei (head–middle–tail). Representative works are "Old Ten," "Old Five," "Toad Jump Well," and so on. The gongs and drums played to ac-

company the dance are collectively known as "Lantern Gongs," which are often improvised. The rhythm, timbre, and percussive technique of the performance are constantly changing according to the characters' moods. The musicians dance and play percussion instruments.

Example 1



Description of Flower-drum Lantern "Gongs and Drums" music sounds:

Dong (冬): the sound made by beating the drum with the right-hand stick.

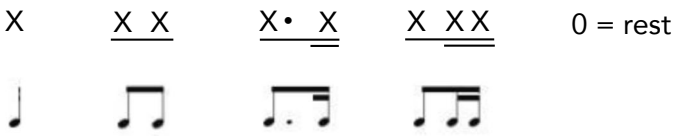
Long (龙): mostly for the sound of the right-hand drum, sometimes also for the left hand.

Yi (一): stop, tap. Or when the drum starts, it means the left hand plays the drum edge.

Kuang (匡): unison.

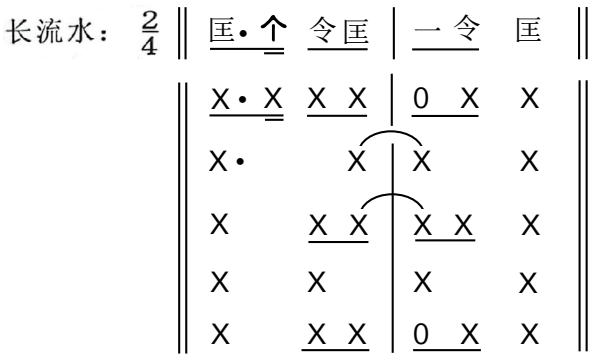
Ling (令): crisp gong, small cymbals, drum, sometimes also add big cymbals, light strike.

Da (大): the sound made by the rim (edge) of a drum.

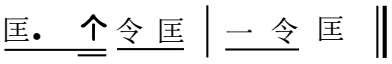


Although the ideas of "Gongs and Drums" are flexible and evolving (see Example 3), they all come from the main pattern Long Water, which is used as the interlude (see Example 2).

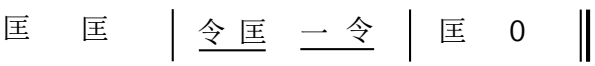
Example 2: Long Water



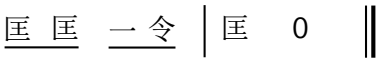
Example 3
Main Pattern: Long Water



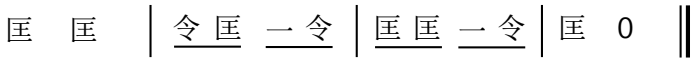
When the dancer moves a little faster, it can be played as such:



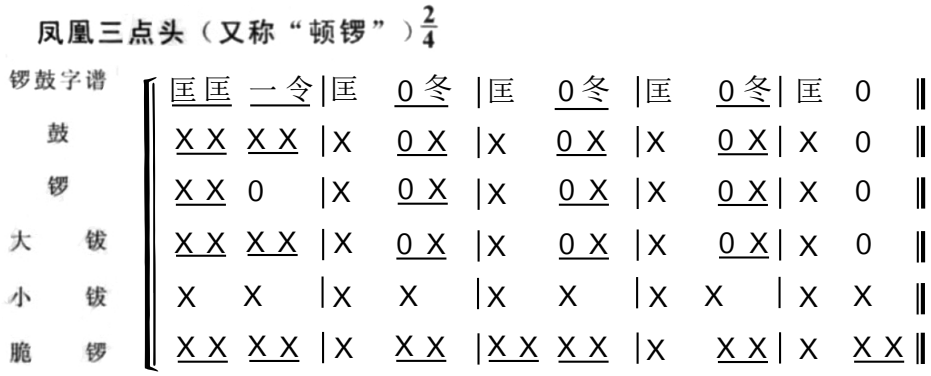
When the dancer moves even faster, it can be played as such:



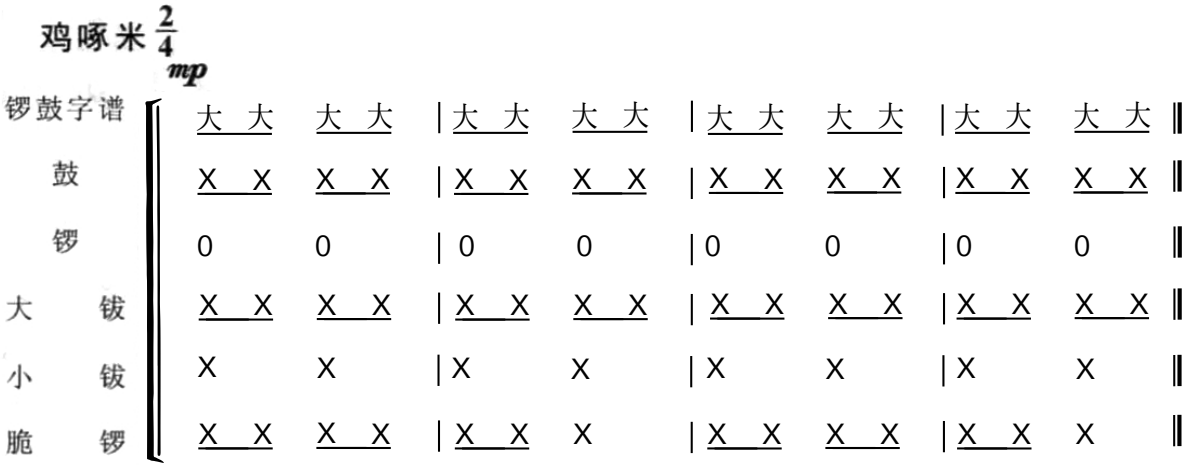
When the dancer moves slowly, it can be played as such:



"Phoenix Nods Three Times": dance moves that show men and women flirting.



"The Chicken Pecks the Rice": the sound of the chicken chattering rice.



The "Gongs and Drums Music" of Anhui Flower-drum Lantern is the essence of Chinese percussion music. The patterns of the drums are complicated and varied, and they have a very rich artistic expression and characteristic of local styles. This is a unique feature of China's national instrumental music industry. Flower-drum Lantern has a long history and a large influence in Chinese percussion music. This art is full of vitality and charm made through inheritance, development, and innovation.

WanNing Chen is a well-trained classical percussionist influenced by a variety of music styles. She is a member of the PAS International Committee and a percussionist of the Suzhou Symphony Orchestra. Chen received her master's degree from Boston University and her bachelor's degree from The Boston Conservatory with the highest honor (Summa Cum Laude).

John Cage's Fourth Construction: An Imaginary Landscape

Thad Anderson

A significant yet puzzling premiere of a John Cage work took place in San Francisco, California, on May 7, 1942. This event occurred close to the culmination of Cage's extensive work developing the early American percussion ensemble. On the evening of its premiere, this work was titled "Fourth Construction." Soon after its debut, however, this composition was retitled "Imaginary Landscape No. 2," which joined two additional pieces within that series. "Imaginary Landscape No. 1," "No. 2," and "No. 3" represent Cage's early experimentation using electronic devices and sliding tones in musical compositions.

A similar counterpart to this group of works is Cage's "Construction" series (the collection of pieces to which "Imaginary Landscape No. 2" was originally assigned). Composed during the same time period, "First," "Second," and "Third Construction" epitomize Cage's experimentation with timbre, rhythm, and formal structure. The "Constructions" have become a central component of the percussion ensemble repertoire, and many admirers of these pieces wish Cage had further explored this compositional format.

Because of the perceived "split personality" of the "Fourth Construction" ("Construction" or "Imaginary Landscape"?), there are many unanswered questions surrounding academic and performance aspects of this work. An examination of the mysterious change of title and the "curious numbering" of the "Imaginary Landscape" series will provide further insight into Cage's so-called "Fourth Construction."

EARLY INFLUENCES: EMERGENCE OF THE PERCUSSION ENSEMBLE

The Bennington School of Dance once hosted an innovative concert on the campus of Mills College in Oakland, California. This performance did not feature dancers, but rather musicians playing on clay pots, chunks of metal, and blocks of wood. This unique concert was presented by John Cage and his percussion group from the Cornish School in Seattle, Washington. They performed music that was specifically written for them by such West Coast composers as Lou Harrison, Johanna Beyer, Henry Cowell, William Russell, and Cage himself. John Cage created this moment in musical history by initiating and inventing his own musical outlet, the percussion ensemble, which scarcely existed at the time. It is now understood that this ensemble served an important role in the development of Cage's early compositions, including those of both the "Imaginary Landscape" and "Construction" series.

Many factors are introduced when significant developments are made in establishing an entirely new genre and outlet for compositional production. This was certainly the case during the first third of the twentieth century. In 1933, Henry Cowell began to publish the first exclusive percussion ensemble music through his *New Music Quarterly* collection. Cowell explains, "Up to this year, in my experience as a music publisher, I have never been offered any work for percussion instruments alone. This season I have been offered fifteen."[1] Significant developments, such as *klangfarben*, futurism, machine music, and the outgrowth of chamber music involving the ever-widening use of percussion, began to take place, which led to the emergence of the percussion ensemble and to Cage's later experimentation and developments with the genre.

Cowell's interest in the percussion ensemble couldn't have come at a better time. During this same period, Cowell had begun working with two young and innovative students — Lou Harrison and John Cage. Both took courses and private lessons with Cowell and were heavily influenced by his knowledge of this new compositional outlet. "Although

both [Harrison and Cage] were aware of recent European and American music for percussion ensemble, the impact of Cowell's teaching was profound."[2] Even Cage noted, "Henry Cowell was for many years the 'open sesame' for new music in America."[3] Through Cowell, Cage was introduced to many important factors that later became central to his involvement with percussion. These include found instruments, the string piano, formal structure, dance music, and sliding tones.

With encouragement from Cowell, Cage discovered the percussion ensemble, and in 1934, after concluding studies with Cowell in New York, Cage returned to the West Coast where he proceeded to compose his own works for the genre. Later, through a written correspondence, Cowell advised Cage that the future of music relies on the "perfection" of percussion instruments and sliding tones. He also suggested that Cage develop and discover original and practical instruments and to create a situation where one performer could play multiple instruments.[4]

Cage took these bits of advice and flourished. Not only did he establish his own percussion ensemble for experimentation and performing, but he also set out to further advance the available percussion ensemble repertoire by composing his own works. This group of ten pieces, written between 1935 and 1943, encompass some of the most influential and vital notes ever written for the genre. Integral to this collection are Cage's "Construction" and "Imaginary Landscape" series. Together, they represent nearly 60 percent of his compositional output from this early phase of his career.

Through Lou Harrison and the growing relationship between percussion and dance music in the late 1930s, John Cage was employed as an accompanist at the Cornish School in Seattle, Washington. Shortly after arriving, Cage set out to initiate his own percussion ensemble. The influence behind establishing his own performing group surely came from Henry Cowell. In a March 23, 1937 letter to Cage, Cowell explained, "I was pleased to hear that you are interested in percussion developments. I was just on the point of trying to form a sort of symphonic percussion ensemble in San Francisco and another in New York before my arrest."[5]

Not far after their initial rehearsal, the ensemble presented its first concert on December 9, 1938. Within the next year, two additional performances were given, and by this time the group had already established themselves as the John Cage Percussion Players. Cage now had a performing outlet for this developing musical genre. To further establish his involvement, Cage contributed two works in 1939 that set a new tone for his compositional style: "Imaginary Landscape No. 1" and "First Construction (In Metal)."

By the time the Cage Percussion Players were fully established in 1939, Cage had only composed two works for percussion ensemble ("Quartet" and "Trio"). If Cage was truly going to advocate for the advancement of music exclusively for percussion instruments, he needed to support the cause as one of the genre's leading composers — not just a producer of concerts. This became his primary task as a composer from 1939 to 1943. James Pritchett explains, "The success of his percussion ensemble concerts, the response from other composers such as Lou Harrison, and his emergence as a primary exponent of all-percussion music led Cage to compose a number of larger works for percussion ensembles of various sorts during the period 1939–42."[6]

Within this span of time, Cage composed around ten percussion ensemble works that are now published and have become a foundational part of the repertoire. At the center of this portfolio of works are two groups of pieces: the "Construction" and "Imaginary Landscape" series.

THE SO-CALLED "FOURTH CONSTRUCTION"

In an early 1980s interview with Stuart Smith, Cage explains, "I remain a percussion composer whether I wrote for percussion instruments or not. That is, my work is never based, structurally or as an instance of process, on frequency but rather on duration considerations."[7] Even so, many wish that Cage would have continued composing additional works for both the "Construction" and "Imaginary Landscape" series. There remains one composition within these series that has yet to be examined. It is one that perhaps fits the mold of both series (having a "split-personality," if you will), and by comparing it with the elements of the two series, one discovers its proper placement.

Due to some of Cage's personal uncertainties during this time, for the researcher, there is a great possibility for error or confusion regarding the matter. For example, David Revill, a musicologist and well-known Cage scholar, included the following sentence in his biography on Cage: "There is a mention in 1942 of a fourth 'Construction,' which may never have been finished."[8] On the other hand, musicologist Leta Miller describes a performance of a completed work in her article *The Art of Noise*: "Harrison not only recalls blowing a huge conch shell during Cage's piece, but also remembers assembling for its performance an instrument comprised of a large spring attached to a phonograph pickup... Cage wrote 'Fourth Construction' — later retitled 'March (Imaginary Landscape No. 2)' — in Chicago in April 1942 and dedicated it to Harrison."[9] This type of contradiction has left many performers and percussionists without any knowledge of a supposed "Fourth Construction."

For purposes of clarity, from here on, the author will refer to the "Fourth Construction" as "Imaginary Landscape No. 2," which is its official published title. "Imaginary Landscape No. 2" was composed in 1942 while Cage was in Chicago. He had access to a radio studio while there and composed a few works with the use of that equipment (including original music for the radio play *The City Wears a Slouch Hat*). Unlike "Imaginary Landscape No.1" and "No. 3," "No. 2" does not contain sliding tones. In fact, the only use of a pho-

nograph in the work is through the use of a radio aerial coil. This instrument is termed "an amplified coil of wire" in the score. With an older phonograph pickup arm, it was possible to connect this coil to the cartridge. When this is accomplished, the cartridge was used like a microphone or pickup to amplify the vibrating coil. The performer strikes, rubs, and scraps the coil to create various sound effects. Additional electronic devices include two buzzers that are sustained at varied lengths throughout the work.

Joining this group of electronic sounds is "a selection of the instruments used in the 'Third Construction.'"[10] As will be examined later, similarities to "Third Construction" are many. Some of these include groups of five tin cans, a conch shell, a ratchet, and a lion's roar. A bass drum is also employed, and the performer is asked to play on both the rim and the membrane. Three players are dedicated performers to the groups of tin cans. Unlike any of the other five works presented in this article, "Imaginary Landscape No. 2" contains two written cadenzas for one of the tin-can performers. These spotlight moments offer clarity to an otherwise chaotic piece.

Art Lange offers the following about the work: "'Imaginary Landscape No. 2' can be a frightening experience, chaotic and violent. There is an almost palpable tension in the seemingly non-synchronous percussion parts (though these are actually plotted along mathematical lines). The trumpeting conch horn and rhythmic urgency suggests the ritual frenzy of 'Le Sacre du Printemps,' though the huge bomb-like explosions take this to a higher, more horrific level of sacrifice."

As a whole, "Imaginary Landscape No. 2" sounds less "electronic" than "No. 1" and "No. 3." This is primarily due to the absence of the sliding tones created with the turntable and frequency-test-tone records.

From a structural standpoint, the majority of "Imaginary Landscape No. 2" uses a micro-macrocosmic format similar to that of other works in both series. The composition's general rhythmic structure is 3 + 4 + 2 + 3 + 5, which creates 17 bar units. "The opening section (three 17-measure units) begins with an almost frightening polyrhythmically dense clamor."[11]

Like in previous works that utilize this type of format, each of these three opening 17-measure units are broken down into phrases that match the rhythmic structure sequence (3 + 4 + 2 + 3 + 5). The second unit consists entirely of material for the solo tin-can cadenza (rehearsal letters C through F in the score). The third section is tutti between all five players and consists of samples of material originally heard in the first unit. This section is soft and offers an important contrast to the cacophony of the opening section.

Continuing with macrocosmic structure, this segment consists of two 17-measure units. The opening statement returns once again for the fourth section (three 17-measure units). This transitions to the final section (letter L in the score), which abandons the macrostructure. This last section, likely a coda of sorts, is only 48 bars long (rather than the expected 85). Harkening back to earlier works, this type of departure from the micro-macrocosmic structure at the end of the work is also seen in the first two "Constructions."

As mentioned in the introduction, "Imaginary Landscape No. 2" was premiered as "Fourth Construction" on Thursday, May 7, 1942, at the Holloway Playhouse in San Francisco, California (see Figure 2). This particular date is quite important because it exposes an important flaw in the numbering within the "Imaginary Landscape" series. As seen in Figure 1, there was an original "Imaginary Landscape No. 2" that was first composed and performed in 1940, two years prior to the currently published work with the same title. There is a reason for this, as Cage explains: "I admit I've been inclined as others have been inclined to get rid of bad pieces, you know, and there are some that are definitely very poor. There's an amusing point here. You have heard about the business of the 'Imaginary Landscape' and the 'Marches,' and there is one 'Imaginary Landscape' that I decided was so bad that it should simply be forgotten, and that's brought about some curious numbering."[12] Thus, the original work was entirely removed from his catalogue and it has never been seen, performed, or heard again. (See Figure 1.)

"Fourth Construction" once existed. Two reviews appeared in San Francisco-based publications the day after the premiere (See Figure 2). Marjory Fisher had this to say about the work in *The San Francisco News*: "John Cage's 'Fourth Construction' was scored for tin cans played with xylophone hammers. An electric buzzer and other strange items still unidentified, added their voices to the sounds of the cans."[13]

Alfred Frankenstein of the *San Francisco Chronicle* was less than satisfied with

Figure 1: *Compositional and premiere performance timeline for the "Construction" and "Imaginary Landscape" series.*

Composition	Composed	Premiered
1. "Imaginary Landscape No. 1"	Spring 1939	March, 24, 1939
2. "First Construction (In Metal)"	November 1939	December, 9, 1939
3. "Second Construction"	January 1940	February 14, 1940
4. "Imaginary Landscape No. 2" *original work later withdrawn	1940	May 7, 1940
5. "Third Construction"	April 1941	May 14, 1941
6. "Imaginary Landscape No. 3"	February 1942	March 1, 1942
7. "Imaginary Landscape No. 2 (March No. 1)" *originally titled "Fourth Construction"	April 1942	May 7, 1942

the work: "Some of the most unorthodox of Harrison's instruments are among his best. Brake drums from junked automobiles, for instance, make marvelous tuned gongs…. But there is almost a touch of burlesque about a piece like John Cage's 'Fourth Construction,' which was played last night, and which calls for an orchestra made up very largely of half-gallon cans. Almost anything goes if it makes an interesting plink, plunk or thud, but sometimes the lack of melodic interest gets on your nerves."[14]

Referring back to Figure 1 and also to Figure 3, it is important to note the compositional dates for both "Imaginary Landscape No. 3" (February 1942) and "Imaginary Landscape No. 2" (April 1942). Consequently, "Imaginary Landscape No. 3" was composed and premiered months prior to the current existence of "Imaginary Landscape No. 2." Through deductive reasoning one can easily understand how this "curious numbering" came about. Apparently, Cage composed a third "Imaginary Landscape" in February of 1942, which was soon followed up by a fourth "Construction" in April of 1942. After the fourth "Construction" was premiered in May of that year, Cage decided to use the work as an excuse to toss the original "Imaginary Landscape No. 2" (circa 1940) and replace it with another work — the alleged "Fourth Construction." To further confuse the situation, as Cage alludes above ("the business of the 'Imaginary Landscape' and the 'Marches'"), "Imaginary Landscape No. 2" has a second title of "March No. 1." Demonstrated in Figure 3, showing the cover of this work, the fact becomes apparent that this composition has, or has had, three different titles: "Fourth Construction," "Imaginary Landscape No. 2," and "March No. 1." (See Figure 3.)

With that said, did Cage compose this work with intentions of it joining the "Construction" or "Imaginary Landscape" group of works? What characteristics does it contain? Has the title change and shift between series affected its performance value? Further examination of both collections helps to identify the proper placement of "Imaginary Landscape No. 2."

When examining the works of both the "Construction" and "Imaginary Landscape" series in the previous sections, it becomes apparent that four key elements help to designate each composition. Within those elements are defining characteristics that provide tools for analysis and juxtaposition. These are as follows:

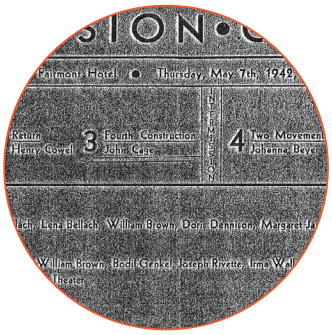


Figure 2: *Concert program listing Cage's "Fourth Construction."*

PERCUSSION • CONCERT

Holloway Playhouse • Fairmont Hotel • Thursday, May 7th, 1942, 8:30 p.m. • 55¢, Tax Included

Program:

1 Canticle No. 3 Lou Harrison
2 Return Henry Cowell
3 Fourth Construction John Cage
INTERMISSION
4 Two Movements Johanna Beyer
5 In Praise of Johnny Appleseed Lou Harrison

Musicians: Harold Bellach, Lena Bellach, William Brown, Doris Dennison, Margaret Jansen

Guest Artists: Carol Beals, William Brown, Bodil Genkel, Joseph Rivette, Irma Wallenius of the Modern Ballet Theater

Conductor: Lou Harrison

Chamber-Ballet in Seven Dances
1. The Trumpets of Heaven
2. Seed
3. Coronation
4. The Battle with Bunyan
5. Fruition
6. The Meeting with the Ancient of Days
7. Ode

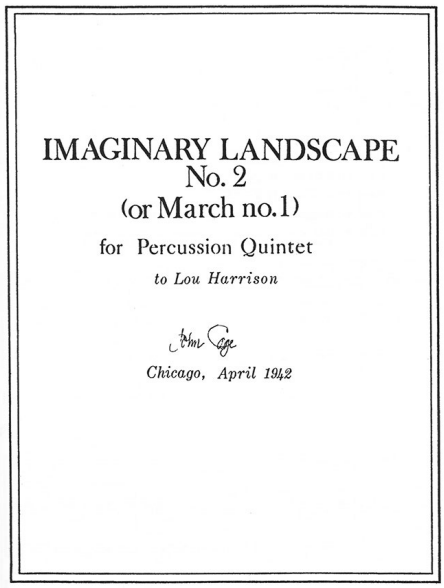
Notes...

First Performance anywhere of
Canticle No. 3
Fourth Construction
Two Movements
In Praise of Johnny Appleseed

First Performance in San Francisco of Return.
The Chamber-Ballet for 5 dancers and 3 musicians with choreography by Carol Beals and Bodil Genkel, music by Lou Harrison was designed especially for this program.

San Francisco

Figure 3: *Cover page for "Imaginary Landscape No. 2."*



1. Timbre
- Metal
- Wood
- Membrane
- Electronic devices
- Sliding tones

2. Rhythm
- Polyrhythms
- Complex rhythmic groupings
- Grupettos across the barline
- Rhythmic cadences

3. Structure
- Rhythmic structure
- Micro-macrocosmic rhythmic structure
- Fugue-like material

4. Instruments

- Traditional orchestral
- Found objects
- Electronic devices
- Ethnic/Eastern influence
- String piano

The timbral nature of "Imaginary Landscape No. 2" meets most, if not all, characteristics associated with the works of the "Construction" series. Within these three compositions, there is a varied texture and color that is demonstrated as the works progress. "First Construction" is rich with metallic sounds, while "Second Construction" is more functional and traditional. "Third Construction" provides the greatest timbral possibilities and, in many ways, "Imaginary Landscape No. 2" (or perhaps the fourth "Construction" in this case) can be viewed as the next progression in Cage's experimentation with sounds and texture combinations. Like "Third Construction," "Imaginary Landscape No. 2" heavily relies on the tin can. In fact, two performers are dedicated tin-can players throughout the entire work. The use of the conch shell also ties these two works closely together.

"Imaginary Landscape No. 2" represents the most rhythmically dense of these six compositions. All four rhythmic characteristics can be found throughout — so much so that it almost creates a new and unique trait of densely layered rhythms. As previously mentioned, the rhythmic structure of "Imaginary Landscape No. 2" is not unlike that of "Second Construction" or even "Imaginary Landscape No. 3." The only work of the six discussed in these pages that does not use micro-macrocosmic structure is "Imaginary Landscape No. 1." Perhaps this also makes "Imaginary Landscape No. 2" a bit more "Construction"-like.

From a performance standpoint, the "Imaginary Landscape" series is also severely underrepresented when compared to its counterpart. Unfortunately, it is not possible to accurately trace the number of times a work is performed. However, based on a survey of available recordings of these six works, "Third Construction" is by far the most recorded (nearly 16 recordings), suggesting that it is also likely the most performed. "First Construction" and "Second Construction" are typically less "popular" than "Third Construction" and appear on recordings roughly the same number of times, having nine or ten recordings of each. On the other hand, in the "Imaginary Landscape" series, "No. 1" has been recorded the most with seven occurrences, while "No. 2" and "No. 3" are represented by only four recordings each. All of the "Imaginary Landscape" recordings combined do not amount to the number of available "Third Construction" recordings. Perhaps if the title of "Fourth Construction" had been maintained, many more performances and recordings of "Fourth Construction" would exist today.

The use of electronic devices in "Imaginary Landscape No. 2" simply cannot be ignored. This is perhaps the solitary reason that Cage decided to change the title. All five of the compositions that make up the "Imaginary Landscape" series utilize some form of an early electronic instrument. By including apparatuses such as radios, buzzers, amplified coils of wire, test-tone records, and the phonograph, Cage creates unique textures that the three "Constructions" fail to come even close to hinting at. This single yet obvious difference offers the clearest insight into the confusion and potential for inaccuracy when researching this topic.

Even though all six works were composed within four years, there are many similar yet distinct characteristics that set these two series apart. Simply stated, "the 'Constructions' concentrate on intricate rhythmic tactics, modifying dynamics, textures, and timbres for variety along the way. They are, literally, *constructed* from predetermined motives, freeing the composer from aesthetic or expressive choices. Though the 'Imaginary Landscapes' are built upon similar numerical formulas, they can be interpreted as works of fiction, offering evocative, expressive attitudes seldom found in Cage works early or late."[15]

CONCLUSION

Since the beginning of the twentieth century percussion experimentation, whether it be in a mixed ensemble or with like instruments, has seen tremendous interest and growth. Although the early percussion ensemble can be credited to composers who came before him, it was John Cage who pioneered the first performing ensemble that made consistent and significant appearances. Through this ensemble came commissions, media attention, and a deeper understanding of the future of Cage's musical career. Cage was also able to use this ensemble to feature his compositions and his early theories regarding the creation of music. As a result of these explorations, two remarkable and influential collections of early percussion ensemble music now exist: the "Construction" and "Imaginary Landscape" series.

With this group of six works, Cage supported his philosophies on music by developing important concepts regarding timbre, rhythm, structure, instrumentation, and the adoption of electronic devices into compositions. In retrospect, these can all be seen as significant developments not only in Cage's career, but in the influence these compositions provided for twentieth-century music and beyond. Of this group of works, only "Imaginary Landscape No. 2" stands out as possessing characteristics of both collections. Only through a careful, detailed examination of both the compositional history and specific musical elements contained within it does one realize that this piece is both a "Construction" and an "Imaginary Landscape."

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Thad Anderson is an Associate Professor of Music at the University of Central Florida, where he coordinates the Percussion Studies program, teaches applied lessons, and directs the UCF Percussion Ensemble. Joining the faculty in 2009, Anderson is also artistic director of the UCF New Music Ensemble and teaches courses in music technology. Anderson is a versatile performer and pedagogue with focused interests that involve contemporary music and technology. Active as a solo, chamber, and orchestral percussionist, Anderson frequently tours and makes appearances across the United States and as far as Bangkok, Thailand. He is active in the PAS community, where he currently serves as President-Elect within the Executive Committee, is a member of the Board of Directors, and contributes to PAS publications.

The Journey from Ancient Greece to Modern Folk Music and Rudiments

By Alexander Nedelkos

I come from Greece, a country with more than 3,000 years of recorded history. Ancient Greece is considered the cradle of Western civilization due to its significant cultural contributions, setting the foundations for the development of philosophy, democracy, literature, drama, art, and science. In terms of music and other art forms, the Greeks made important innovations and advancements that have had a lasting impact on Western civilization.

One of the most significant contributions of the ancient Greeks to music was the development of a system of musical notation called *parasemantics*. This system allowed for the precise recording and transmission of musical compositions, enabling the preservation and dissemination of music over time. They also made important contributions to the development of music theory, including the concept of musical modes (e.g., Ionian, Dorian, Aeolian) and the use of mathematical ratios to determine pitch relationships, developed by Pythagoras. Many terms we use today in the music art form, such as rhythm, harmony, melody, metronome, chorus, orchestra, cymbal, and many more are originally Greek words. Even "music" is Greek (μουσική)!

Percussion instruments played an important role in ancient Greek music, particularly in religious and ceremonial contexts. To name a few, Kymbala, Kroupezion, Sistra, and Krotala. One of the most important percussion instruments in ancient Greece was the the tympanon (τύμπανο, hence the word "tympani"), which was a type of drum. The tympanon was made of animal skin stretched over a wooden frame, and it was struck with a stick or mallet to produce a deep, resonant sound. Percussion instruments were also often used in the military for marching soldiers.

Figure 1: Goddess Kyveli playing the tympano

The Avlos, a type of fife, was also used by the military, guiding and signaling soldiers. So, we do find the concept of fife and drumming in Greece from almost three millennia ago.

THE GENESIS OF COMPLEX RHYTHMIC PATTERNS AND ODD METERS

Based on the texts of ancient authors such as Plato, Aristotle, Ploutarchos, Aristoxenus, Archilochus, and artwork from the time period, we find myriads of rhythmic structures and patterns that were developed and used in ancient Greek music, ranging from simple to complex.

One very important rhythm was the Anapaest, which is a rhythmic pattern consisting of two short syllables followed by one long syllable (which translates to two eighth notes, followed with an accented quarter note). Anapaest was a common military beat, but it was used also for other occasions, such as accompanying drama and poetry recitations.

Noteworthy rhythmic patterns were also Iambus (eighth note followed by a quarter note, our ancient shuffle!), Paeon (5/8), Epitritos (7/8), and Enneasimos (9/8).

THE EVOLUTION AND DIVERSITY OF GREEK FOLK MUSIC

The cultivation of music, rhythms, and percussion in Ancient Greece served as the foundation of the development and evolution of Greek folk music through the centuries.

Greece has a varied landscape, with numerous islands, mountain ranges, and coastal regions, each with its own distinct culture and regional dialects. Greece also has a long and complex history, with strong influences from other cultures, particularly the Byzantine and Ottoman empires. All these elements have contributed to the rich and diverse tapestry of Greek folk music and its distinctive rhythmic patterns.

Music has long been an important part of Greek culture, with a rich tradition of singing and dancing at festivals, weddings, and other social events. This has helped to preserve and promote the diversity of Greek folk music, with many local communities continuing to practice and pass down their musical traditions through the generations.

MY PERSONAL JOURNEY

I was born and raised in Edessa, a small, beautiful town in Northern Greece. Early on in my high school years I got involved in music, playing in local bands as a self-taught drum set player. Although the area has a strong tradition with "chalkina" folk-dance brass bands with a big influence from the Balkan area, being a teenager in the early 1990s, my music interests were initially turned to the MTV pop culture of the time and, later on, to the rock and metal scene. Most kids of my generation didn't think that our traditional music was "cool," so we didn't listen to it or explore it. But our folk music was persistently present in our lives at weddings, social gatherings, festivals, etc. So, it kept growing in the background of my mind, imprinting itself in my cultural DNA.

I continued playing with various rock and blues bands during and after my university years, until my early 30s. Having relocated to Athens, I decided then to invest heavily on my music education, so I took lessons from Nikos Sidirokastritis. He introduced me to the wonderful world of rudiments, and I immediately fell in love with the drum language. Having a background in physics and software programming, I am hard-wired in using languages and rules-sets to build new informational patterns and applications. So, the rudimental vocabulary was a eureka moment for me.

Figure 2: Avlos musician guiding Spartan soldiers to battle

Figure 3: Image courtesy of Giannis Chatzis

Ancient Greek Rhythms Examples

Anapaest: (U U —) = ♪♪♩ = 4/8

Iambus: (U —) = ♪♩ = 3/8

Paeon: (— U U U) = ♩♪♪♪ = 5/8

Epitritos: (— U — —) = ♩♪ ♩♩ = 7/8

Enneasimos: (— — — U U U) = ♩♩♩ ♪♪♪ = 9/8

** U stands for short syllable, - (dash) is long syllable*

FUSING DRUM RUDIMENTS WITH GREEK TRADITIONAL FOLK MUSIC AND ODD METERS

After some years studying rudiments and developing my hand technique and articulation, it became natural to me to try out rudimental combinations on a snare, building expressions and etudes. Up until this point (around 2015), I still wasn't actively into our folk music. Then one day it hit me. As I was practicing with play-alongs, next in the random playlist was "Pousitnitsa," a 15/8 up-tempo dance music of my hometown. I immediately played on it, knowing instinctively where exactly the "1" was, how to navigate through the subdivisions using rudiments, and overall, having a surprisingly nice flow and musicality.

After the track ended, I was shocked! I had never played a 15/8 time signature before. So, that was a second eureka moment for me. The time was ripe. All my cultural heritage and silent upbringing finally surfaced.

From that moment on, the path was very clear to me: "speak" using the language I know well (the drum rudiments) into music that my body and soul is imprinted with. I began systematically exploring and studying our folk music, understanding the different styles and diversity across the country and connecting with traditional musicians. It was only natural to first explore the traditions of my hometown and Northern Greece. It is there where the most complex rhythmic patterns exist, like Stankena (11/8), Pousitnitsa (15/8), Poustseno, aka Leventikos (16/8, a combination of 9+7/8), and many more.

One of the important elements of our folkloric music is how it is inextricably connected with dancing. That is the reason why most names of the music pieces are named after the dance. There is a very distinctive way of movement and steps taken by the dancers. Every dance has a unique pattern. The musicians, when performing live, adjust the flow and tempo of the music according to how the dancers move. It doesn't matter how complex the rhythmic pattern is; everyone who dances doesn't count subdivisions to follow a 15/8 or a 9/8, nor do they anticipate where the "1" is. They know the music by heart and just dance according to the predefined steps.

That is the beauty of it and at the same time, the core of my approach. I try to create blocks and patterns that serve the music and melodies of each tune, not add rudiments to fit a specific time signature and/or to make the music difficult just for the sake of it. Also, I respectfully keep in mind how the traditional percussionists played: simply, musically, and very groovy, using mostly single strokes, and I try to incorporate the feel and style to my approach. It's noteworthy that although the "ntaouli" (davul) is one of the most commonly used percussion instruments in our folk music, players of Northern Greece very often use a snare and a bass drum, placed on the street and played with hands only (the setup is often called "kasotampouro").

Having presented my work in clinics and performances in the USA and U.K., I quickly realized that using rudiments, a common language among drummers everywhere, makes our folk music and its complex time signatures more accessible, easily understood, and, most importantly, fun for everyone to play! So, as a whole, I believe that my approach is a great opportunity to share my traditions and culture with a broader audience and also have educational and entertainment value.

Figure 4: Excerpt from the snare score of "Rudimental Leventikos"

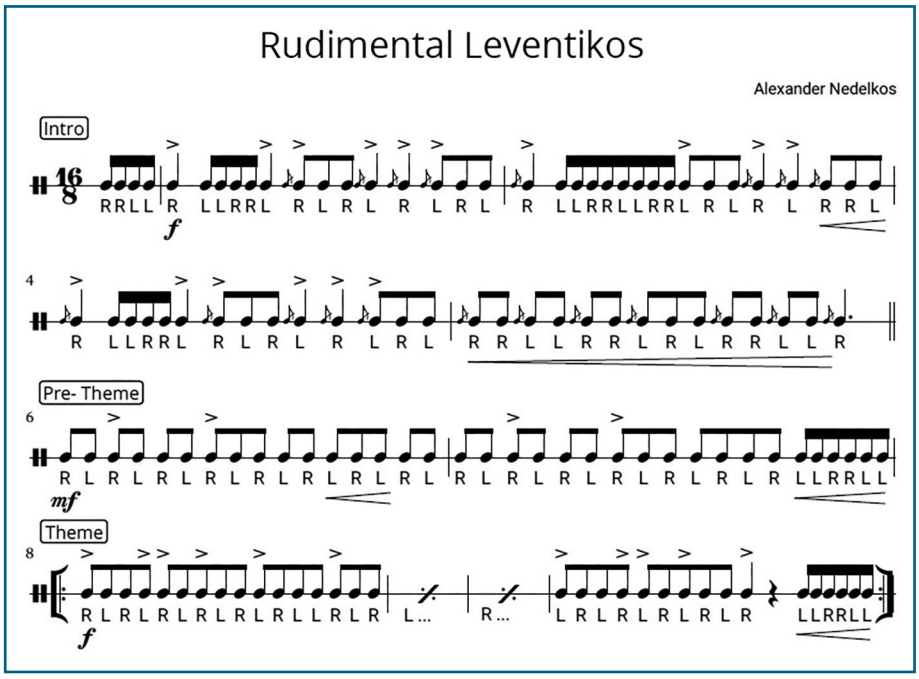

Figure 5: Dancers of all ages, dressed in traditional costumes, in a festival in Edessa, Greece. Photo courtesy of Cultural Folklore Dance Association of Edessa.

RUDIMENTAL DRUMMING AND MARCHING BANDS IN GREECE

Despite the fact that Greece has a big and very respectful community of drum set and orchestral players and folk music percussionists, the rudimental drumming tradition, as we know it from Europe and the USA, is not present. We do have marching bands (mostly municipality supported wind bands and military bands), but their number is relatively small and the rudimental language is not used. Furthermore, marching band percussion is not a priority for a plethora of Greek band conductors. Of course, there are bright exceptions to this rule,

Figure 6: Traditional folk music band with "kasotampouro" setup. Image courtesy of Lakis Samaras

such as bands from Corfu and Rudbeats Drumline by Tolis Arsenidis, who played exclusively rudimental solos as a group some years ago. There are a lot of reasons for this outcome, with the most prominent being that due to our complex and turbulent history, especially in the past two centuries, military music didn't have the chance to flourish and serve as a foundation for modern marching percussion.

On the other hand, a small core of individuals study the rudimental drumming art form in our country. There are also more who want to learn, and I am sure that even more would want to be involved, if they were exposed to the rich global rudimental drumming traditions. This is why I took the initiative to found the Greek Rudimental Drumming Community (GRDC) in the summer of 2020, with a mission to share the global drumming heritage to the Greek drumming community and, at the same time, evolve our own style, based on our own traditions.

SOCIETY OF INTERNATIONAL RUDIMENTAL DRUMMERS (SIRD)

The concept and establishment of GRDC was a direct result of connecting to

the international drummer's community by being a part of the Society of International Rudimental Drummers (SIRD). In the beginning of 2020, in my search for information, resources, and people in the rudimental drumming scene, I came across the website of SIRD. Claus Hessler, whom at that time I interviewed for my podcast *Woodiments* helped me with the introductions. Even from the first email communications with the board (Oliver Fischer, Mark Reilly, Russel Piner, Lionel Renaud), I felt immediately welcomed. Very quickly, I got to know everybody and got exposed to literature and information on drumming styles from different countries, with the guidance of SIRD members. Also, having the need to give back and contribute, I became a member of the board soon after.

With the help of SIRD, in October 2020 during the pandemic lockdown, I organized a two-day digital event in Greece, having members of SIRD and Greek players performing via live stream. In September 2023, for the first time ever in Greece, the international drumming community is meeting in person in Athens for a two-day Rudimental Drumming & Marching Bands Festival, an event organized by GRDC and supported by SIRD.

I believe that the story of my involvement with SIRD alone is one of the best ways to describe how important the organization and its mission is, in sharing knowledge and innovation about rudimental drumming globally, providing a forum for the exchange of information, educating and supporting the needs and the progress of its chapters, organizing and promoting events, and building a library to protect the knowledge and literature on rudimental drumming for today and future generations.

Having already organized three very successful global symposiums and heading towards the fourth in Washington (2024), SIRD keeps growing and connecting drummers from all over the world, from Haiti to Australia. I invite you to learn more about the organization at *www.rudimentaldrumming.org*, be part of the global rudimental drumming family, and #sharethetradition.

Figure 7: Performing at PASIC 2022

Figure 8: The 3rd SIRD Symposium, Portsmouth, U.K., September 2022.

Alexander Nedelkos is a drummer, educator, and music community-builder from Greece. He is the Greek representative and board member of SIRD (Society of International Rudimental Drummers), interim president of PAS Greece, founder of GRDC (Greek Rudimental Drumming Community), and organizer of the 1st Greek Rudimental Drumming Festival. Alexander is also a NARD and USARD member. He has presented his work internationally at the Drummers Heritage Concert at PASIC and the SIRD Symposium in the U.K., and he has given clinics at the University of West Virginia. Alexander is also the host and producer of *Woodiments*, a drum podcast with interviews from legendary international and Greek drummers.

2022 PAS Composition Contest Results

The purpose of the PAS Composition Contest is to encourage and reward composers who write music for percussion instruments, and to increase the number of quality compositions written for percussion. The 2022 Composition Contest focused on solo percussion with chamber ensemble.

WINNER

"Rubiks: A Learning Curve"
By Allan X. Chen

This is an exciting new addition to the percussion concerto repertoire. The work is scored for vibraphone soloist, flute, B-flat clarinet, horn, trombone, harp, two violins, viola, and cello. The work is formidable for both soloist and ensemble, requiring an ensemble with technical prowess and nuanced sensitivity to timbre and rhythmic precision. "Rubiks: A Learning Curve" is an excellent option to program on a professional or graduate collegiate recital. The piece fills a specific niche that is not seen often in our current canon of vibraphone concerti: a challenging yet idiomatic contemporary work for vibraphone and mixed chamber ensemble that is palatable to a wide array of audiences.

The vibraphone fluidly transitions between soloist and ensemble members. There are several moments where the vibraphone blends in with the texture of the accompaniment, then emerges from the ensemble into a soloistic role. The dual nature of the vibraphone part is an integral component in the unique and charming nature of the work.

The form of the work is compellingly unconventional, both for the ensemble members and the soloist, mimicking a mechanical whir where individual parts of a whole are sputtering to life and malfunctioning. The ensemble members and soloist rhythmically interact with unison motifs that contrast with chaotic and jagged hocketed syncopations, reminiscent of the Ligeti Piano Concerto. The composer writes, "Often the entire ensemble is treated as a single sonic organism, constantly shifting in color and effect. The individual parts often trigger, interrupt, blend with, surge out of or into, or contradict one another; it's a chaotic and unstable machine constantly shifting and changing directions."

Once a section feels like it is starting to develop and hit its stride, the character immediately changes, and a new section begins. The rapid shifting of character of the piece will keep audiences on their toes with a constant sense of anticipation.

The work expertly showcases the many timbral and expressive possibilities of the vibraphone. The composer utilizes pointillistic and jagged staccato gestures, lush chords, driving rhythmic passages, and an extended bowed aria that is one of the most gorgeous and unsettling uses of bowing in the vibraphone repertoire. The notation for the vibraphone part is exceedingly clear, and includes many well-thought-out descriptions of the various types of pedaling and character the composer envisions for each section.

"Rubiks: A Learning Curve" is a refreshing and unique take on the vibraphone as a solo instrument. The uniqueness in form and the idiomatic writing for all members of the ensemble make this an attractive piece for programming in a wide variety of settings. I highly recommend "Rubiks: A Learning Curve" to anyone looking to add a fresh and exciting piece to their repertoire.

—Paul Millette

Allan X. Chen is an award-winning South African-born and based composer. He is the recipient of the Elgar Memorial Prize from the Royal College of Music, and winner of the Royal Scottish National Orchestra (RSNO) Composer's Hub Competition, and the Bowdoin International Int. Music Festival Composition Competition. While primarily a contemporary classical composer, he also regularly scores music for films and builds interactive art installations that combine physical form and experimental music.

HONORABLE MENTION

"Zappada"

By Eduardo Soutullo García

With a title that refers to Frank Zappa (to whom the work is dedicated) and the word "zapada" (improvisation; a jam session), there is no questioning the high quality of this work by Eduardo Soutullo. "Zappada" is a celebration of timbre, uniqueness, and an overall breath of fresh air within the percussion and chamber music communities.

"Zappada" is a highly challenging work for solo vibraphone (labeled "solo percussion" in the score), percussion quintet, and three wind players. The solo vibraphone makes use of traditional playing, bowing, and use of motor throughout. While idiomatic to the instruments, the solo and ensemble parts are all technically challenging but create space effectively so that there are minimal issues regarding performer stamina.

The supporting percussion quintet is primarily split into three sections: percussion one and two, who have a plethora of instruments with unique timbres such as boo-bams, temple bowls, steel drums (double seconds), bowed tam tam, multiple gongs, etc.; percussion three, who plays a supporting vibraphone role to the soloist; and percussion four and five, who both play marimba throughout. The wind section calls for B-flat soprano sax and B-flat clarinet (played by one person), B-flat flugelhorn, and bass trombone. While some may find this to be a unique instrumentation, the composer's use and treatment of instrument timbre, rhythm, and space makes for a work that is uniquely itself and is also reminiscent of the ensemble works of composers such as Elliot Carter, Edgard Varese, and even Zappa himself.

It should be noted that outside of a few specific sections, the three wind parts are primarily supporting roles. The composer frequently pairs the wind instruments with pitched percussion, an effect that changes the timbre of the sound that is heard. Some examples of this effect include instances of bass trombone and fluegelhorn playing crossfading long tones while the percussionists have extensive semi-octatonic polyrhythmic material underneath and doubling of motivic statements between percussion and winds.

Several sections allow select performers to improvise. The composer clearly marks these sections and provides performers with pitch and dynamic elements to use in their improvisation. While this work makes use of several musical devices that percussionists have become accustomed to seeing, the composer's treatment of these devices is refreshing and interesting. The subtle metric modulations, intriguing treatment of tonality, and wide timbral spectrum and inclusion of improvisation make for a memorable work, but one that is still unique at each performance.

While the vibraphone is a solo voice in "Zappada," this piece is not a typical work for solo vibraphone with a supporting cast. Rather, the work is an extremely well-written piece of contemporary literature that extensively features the vibraphone as the leading role throughout. While the composer pulls influence from our modern canon, this work isn't trying to mimic any pre-existing works within our percussive repertoire or stand on the shoulders of another composer. "Zappada" is a serious piece of contemporary literature that should be considered for performance, especially for those searching for new and unique literature.

—Caleb Pickering

Eduardo Soutullo García's orchestral works have been performed by numerous symphonic orchestras. He has received commissions from Auditorio Nacional de España, Fundación Isaac Albéniz, Fundación Autor, XXVII Festival de Alicante, 51ª Semana de Música Religiosa de Cuenca, XII Festival Internacional de Música Contemporánea Tres Cantos, XXVI Festival de Música Española de Leon, Orquesta Sinfónica de Galicia, Orquesta Real Filharmonía de Galicia, Caixa Catalunya, Residencia de Estudiantes de Madrid, Festival Via Stellae, etc.

2023 COMPETITION

Category: "Footprint" composition for six percussionists. A "footprint" composition is defined as a composition that utilizes the instrumentation and setup of a previously recognized composition. The setup and choice of instruments will follow a "footprint" from "Toccata" by Carlos Chávez (1942). Choosing subject and instrumentation from this piece offers composers a suggested model for their consideration and encourages smooth flow of concerts by minimizing instrument movement.

The composition should be for six percussionists using specified diverse groups of pitched and non-pitched percussion instruments. Limited additions or deletions of instrumental timbres are acceptable as long as the basic "footprint" of instruments is maintained. This new composition does not have to complement or build upon the original "Toccata." Composers are encouraged to explore the melodic and unique timbral aspects and to search out innovative approaches to utilizing these instruments.

Awards: $3,000 grand prize; up to two honorable mentions, $250.00 each.

Deadline: The deadline to apply is September 1, 2023. For additional information and the online application, visit *https://pasjudging.pas.org/composition-contest*.

New Percussion Literature and Recordings

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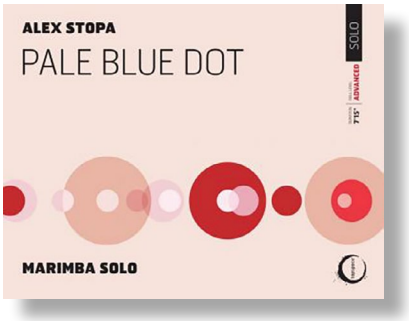
Difficulty Rating Scale

I–II	Elementary
III–IV	Intermediate
V–VI	Advanced
VI+	Difficult



KEYBOARD PERCUSSION SOLO

Pale Blue Dot VI
Alex Stopa
$19.00
Tapspace Publications
Instrumentation: 5-octave marimba
Web: *score sample, audio recording*

In his program notes, composer Alex Stopa writes: "In 1990 an incredible portrait of planet Earth was captured by the Voyager 1 spacecraft. Taken from a distance of four billion miles, the photograph shows our home planet, Earth, as a tiny point of pale light, barely visible in the enormity of space. The image is at once humbling and awe-inspiring, highlighting the fleeting nature of human existence in the vastness of our universe.

"Accompanying the image of this 'pale blue dot' is an extraordinary quote from American astronomer Carl Sagan (available online at the Planetary Society's website). Some 30 years later, as civilization places ever-increasing demands on our planet, Sagan's message of compassion and preservation resonates with an even greater urgency."

"Pale Blue Dot" for five-octave marimba was commissioned through a consortium organized by Dr. Jeffery Crowell and 12 other individuals. It opens and closes with a constant sextuplet rhythm that provides an accompaniment to accented melodic pitches (almost minimalistic in its effect). Additional sections provide contrast, creating a mosaic of almost chorale-like content. Effective dynamic control and sensitivity to rubato transitions provide a unique aural tone-painting to the composer's awe and wonder of Earth's existence as a "pale blue dot." This composition would be appropriate for a mature, skilled four-mallet marimbist.

—Jim Lambert

PERCUSSION ENSEMBLE

Beacons IV
Clif Walker
$65.00
Tapspace Publications
Instrumentation (22 Players): 3 vibraphones, xylophone, 4 marimbas (one 4-octave, two 4.3-octave, one 5-octave), chimes, glockenspiel, crotales (high octave), 5 timpani, claves, finger cymbals, 2 large toms, 4 concert toms, brake drum, 6 thunder drums (fifth and sixth drums optional), 4 garden weasels (or small chimes), 4 woodblocks (high, two medium, low), 4 triangles (high, medium, low, unspecified), 5 temple blocks, China cymbal, 4 suspended cymbals, thin suspended cymbal, ride cymbal, cymbal stack (or ribbon crasher), sizzle cymbal, tam-tam, 2 congas, bongos, concert bass drum, Mark Tree, 4 cowbells, sleighbells, bell tree, synthesizer
Web: *score sample, audio recording*

"Beacons" was commissioned by Peter Repp and the Rockwood Summit High School Percussion Ensemble for the 2022 Midwest Band and Orchestra Clinic. As can be seen from the instrument list, "Beacons" is for a very large percussion ensemble. For those lucky enough to have the resources to perform the piece, it is an engaging work that will challenge high school and undergraduate performers. Each part is difficult in terms of rhythmic and ensemble cohesion. Technically, the mallet parts are particularly challenging, with numerous runs and four-mallet playing, and the drum parts (including timpani) are quite "choppy" at points. The timpani part includes some tricky pedaling. However, the overall difficulty varies among parts, making this work useful for a school group.

Uniquely for a piece with 22 players, Clif Walker requests that it be performed without a conductor. "Beacons" partially refers to this idea, with Walker describing the piece as having a "melodic searchlight calling out into the unknown." The work also has some theatrical elements, including performers appearing on stage upon responding to "musical beacons," and stand lights turning on and off. Other unique elements include a sample of nighttime/cricket sounds, staging of eight players surrounding the audience (with the remainder of the ensemble on stage), and the use of garden weasels. I'm not sure how a garden weasel (which seems to be a brand, not a specific item) is used as an instrument, and I couldn't find a clear answer on the internet. I wish there was more information about this in the score.

"Beacons" has a vaguely gamelan sound throughout. I enjoyed the brief moments of repose where the ambient sounds of crickets and thunder provide a break from the more densely packed material that makes up the majority of the piece. There are numerous tempo changes, including tempo modulations. I would anticipate a lot of rehearsal time in order to perform this work unconducted, as all of the ensemble members will need to be very aware of what is happening in the piece at all times. Because of the number of performers and instruments, as well as the setup of instruments, balance will also need to be carefully considered and rehearsed. If one has the resources and time, "Beacons" is well worth the effort.

—Joseph Van Hassel

Bounce III
Danny Raymond
$23.00
Tapspace Publications
Instrumentation (2 players): snare drum, drum set
Web: *score sample, audio recording*

For those looking for a funky, groovy duet, "Bounce" definitely fits the bill. This work makes use of swing sixteenths with straight eighths to give the piece a, well, "bouncy" feel. Though the snare drum is the featured voice, the drum set provides much of the character and melodic contour with minimal voices.

The instrumentation is wonderfully accessible, as is the clear writing style. Most band programs these days likely have a snare drum and a drum set, and the snare drum writing generally reflects marching-style notation, with which the students will probably be familiar. The notation key at the beginning is clear, so even without a teacher/leader, students who can read notation well will be able to collaborate and produce the desired effects. "Bounce" offers performers the opportunity for a true duet, to support one another through their chosen sounds and cohesive physical performance style.

Interestingly, the notated stickings already produce suggested moments of physical performance. About this, the composer states: "Performers are encouraged to add visuals and stick tricks where the opportunity arises. Phrases with rests or single-hand passages afford each hand a chance to lift, twirl, flip, or otherwise add some flair with the stick. Feel free to get creative and have fun!"

—Cassie Bunting

Fade (Free) IV–V
Clif Walker
$49.00
Tapspace Publications
Instrumentation (11 players): crotales (high octave), glockenspiel, 2 vibraphones, chimes, xylophone, 4.3-octave marimba, 4.5-octave marimba, timpani, drum set, piano, electric bass guitar, 3 cowbells, temple blocks, 3 triangles, vibraslap
Web: *score sample, audio recording*

"Fade (Free)" for drum set soloist and percussion ensemble is a good addition to the percussion ensemble with drum set soloist repertoire. The composer states, "Fade refers both to the act of disappearing, realized through the many decrescendos throughout the piece, and the pitch sequence F-A-D-E. (Free) suggests the freedom that the drum set soloist can enjoy within the context of the given parameters of the composition."

The solo drum set part is a great opportunity to showcase a player with some chops. The part is fast, syncopated, and leaves some space for improvisation. The performer needs to have a wide dynamic range (especially softer dynamics) to be successful with this part. The player also needs to have solid time and the ability to push and pull in places. There is a 15–30 second improvised cadenza in the middle, but otherwise the part is very well notated and straightforward.

The percussion ensemble, piano, and bass parts are simple and serve only as accompaniment, allowing the soloist to supply the primary material. This allows for younger or less experienced players to be part of this large, exciting piece. The marimba and one of the vibraphone players should have a solid grasp on four-mallet playing. If you are looking for a piece to feature a drum set soloist and an intermediate percussion ensemble "Fade (Free)" is your answer.

—Joe Millea

The Mandalorian III+
Ludwig Göransson
Arr. Kirk J. Gay
$40.00
Tapspace Publications
Instrumentation (10 players): 2 marimbas (4.3-octave and 5-octave,) 2 vibraphones, glockenspiel, 4 timpani, chimes, bass drum, tam-tam, waterphone, suspended cymbal, tom, thunder sheet
Web: *score sample, audio recording*

Music from the *Star Wars* series *The Mandalorian* was created by Swedish composer Ludwig Göransson, and is meant to convey a "futuristic" sound, while still capturing the cinematic depth of the original movie music from the 1970s and 1980s. Additionally, the character of the music hints at the music of old Western movies (think distant whistling during a shootout scene) with added layers of melodic and rhythmic ostinati. The creative simplicity of the music translates very well to percussion instruments, and is idiomatically arranged into this 3½-minute work.

While the texture of this arrangement is thick and active at times, this piece is accessible to players who have a basic understanding of steady rhythmic pulse, ensemble awareness, and phrase delivery within repetitive musical figures. All the mallet parts can be played with two mallets, and they typically have "mirrored" parts somewhere else in the ensemble, which can aid in performance clarity and confidence. Additionally, Kirk J. Gay has scored this work to target varying levels of percussion experience, where the mallet parts are best reserved for stronger players, and the glockenspiel and percussion parts are best suited for students who might be new to the percussion ensemble game.

While there is a waterphone called for in the instrumentation, it is only used in one measure, and the effect can easily be substituted with a bowed cymbal or Superball mallet on a tam tam.

With a wide array of parts that range in difficulty, coupled with a rhythmic vocabulary that is simple, yet effective, this work will appeal to students and audience members alike, whether or not they are a fan of the source material from which it originated. If you are considering this piece for your next percussion ensemble concert, rest assured: this is the way.

—Joshua D. Smith

Memory's Lens III–IV
Clayton Stroup
$39.00
Tapspace Publications
Instrumentation (6 players): 2 vibraphones, bongos, 4 concert toms, mounted kick drum, snare drum, 4 cup chimes (or substitutions), 2 suspended cymbals, brake drum, castanets, sleighbells, tambourine, 3 woodblocks
Web: *score sample, audio recording*

"Memory's Lens" is an ambient and hypnotic piece scored for two vibraphone players and four players on non-pitched instruments. At just over 3½ minutes in length, it could serve as a palate cleanser on a program of denser or longer works. The composer states the piece "is a musical attempt to capture the way one feels when remembering their earliest childhood…Wind chimes on my grandparent's porch are some of my first personal memories, represented in this piece by vibraphones as well as cup chimes. The drums and auxiliary percussion parts are meant to embody the ordered chaos of how memories are formed and change subtly over the years."

The melodic aspects of the piece are generated by the two vibraphones, on which recurring single-note motives are scored in spacious-sounding hockets and hemiolas. This is coupled with suspended cymbal figures in the same parts that act to anchor the phrases with downbeats. Although the writing is limited to eighth notes and slower rhythms, a certain level of coordination will be necessary for younger players to execute these parts. The other four parts consist of quarter-, eighth-, and sixteenth-note figures with varying accents, making them appropriate for less advanced players.

The biggest challenge in preparing this piece will be maintaining balance between the two vibraphones and the other parts. There are moments when the snare drum or concert tom parts could easily bury the melody, so special attention to dynamics, stick choice, and perhaps muting will be necessary. If a conductor is used, this piece would certainly be appropriate for an intermediate high school percussion ensemble. However, if performed without a conductor, it could be a nice introduction to chamber playing for a beginning college group.

—Jason Baker

Pelican II
Brian Slawson
$37.00
Tapspace Publications
Instrumentation (9 players): chimes, glockenspiel, xylophone, vibraphone, 4-octave marimba , 4.3-octave marimba, drum set
Web: *score sample, audio recording*

This new release is written for nine players and clocks in at around three minutes. It's a funky jam for younger students that does not pretend to be anything that it's not; it is here to have fun. The instrumentation is constructed in a very smart way that utilizes a lot of the standard instruments found in a high school or middle school, especially keyboards. As a teacher, one could use this to push keyboard education in a percussion section. The only hiccup would be if a program does not own two marimbas. It gives a chance for a young drum set player to work on groove and even makes playing chimes cool!

Many aspects of this piece work well for less

experienced percussionists. While in standard 4/4 time, there are two 5/4 measures that would be a great introduction to time signatures other than common time. One of the marimba parts has a written glissando, which can introduce this concept to students for the first time. Most of the work is in the key of A minor, which could be a good opportunity for students to learn about major keys vs. minor keys. Towards the end of the work, there's a hard shift to B-flat minor, which can be a good opportunity for students to learn a new key that they don't usually play in.

There are plenty of great opportunities for learning in this work along with possibly one of the most important aspects of music: fun!

—Ben Cantrell

The Stars Began to Burn III
Matthew Gillott
$45.00
Tapspace Publications
Instrumentation (13 players): glockenspiel, xylophone, crotales (2 octaves), chimes, 2 vibraphones, two 4-octave marimbas, 5-octave marimba, piano, tambourine, bongos, claves, 4 suspended cymbals, snare drum, 2 impact drums, tam-tam, cabasa, ride cymbal, hi-hat, bell tree, sizzle cymbal, rainstick, egg shaker, Mark Tree, concert bass drum, djembe, field drum, 4 concert toms, 2 congas, piano
Web: *audio recording*

This is an energetic and effervescent composition for percussion ensemble. Written for 13 players (12 percussionists and a pianist), the piece was inspired by Mary Oliver's poem "The Journey" and its message of overcoming self-doubt to gain confidence in one's own identity. From the ominous tolling of the chimes at the beginning to the delicate and peaceful final chords of the metallophones, Matthew Gillott paints a musical picture of a journey of self-discovery.

The texture at the beginning of the piece is thin but humming with the intensity that something bigger is coming. The low chime hits on beats 2 and 4 create a funereal mood, and the churning sixteenth notes in the marimbas add to the sense of foreboding. This energy soon explodes with the introduction of hand drums, the bongos and congas and djembe thrumming beneath the melodic material. These rhythmic interjections soon take a more prevalent role as the piece moves in compound meter, with cymbals and hi-hat adding to the hand drums, creating a sort of hybrid drum set accompaniment to the melodic material.

The middle section enters a more ethereal soundscape, with soft textures painted by the rainstick, Mark Tree, and snare drum with brushes. This section transforms from a more intense, driving atmosphere to a softer texture, building slowly to the climax. With the fanfare gestures in the chimes, the insistently driving hi-hat pulse, and emphatic repetitive gestures in the mallets, the piece churns energetically to a climactic tam-tam hit. The piece settles after the climax, with 6–5 suspensions in the vibraphones helping create a sense of resolution as described in the program notes. The twinkling lines in the glockenspiel and crotales are evocative of the sparkling stars in the night sky, creating the sensation that the journey of self-realization has been completed.

When programming this piece, directors shouldn't be deterred by the inclusion of a piano; the piano part is simple enough to be played by a percussionist with basic piano skills. There are no intervals over an octave; the part consists primarily of block chords, octaves, and the occasional arpeggiated figure. As with the percussion parts, the rhythms are not too complicated and should be feasible for an intermediate player.

This piece would be excellently suited for an advanced high school or early collegiate percussion ensemble. The piece is feasible without a conductor (though the occasional fermata would require some group cues and chamber skills). Pedagogically, it's an easy way to introduce students to quarter-note triplets. Gillott weaves them into a texture of eighth-note triplets and into compound meter sections, thus creating multiple frames of reference for the rhythm. The main obstacle for high schools would likely be the number of players and the availability of instruments.

—Hannah Weaver

21 Grams V
Caleb Pickering
$36.00
Self-Published
Instrumentation (11 players): 2 vibraphones, two 4.3-octave marimbas, 4.5-octave marimba, 5-octave marimba, bells, crotales, 4 timpani, bass drum, 2 crash cymbals, suspended cymbal, tam tam, triangle, marching machine, brake drum, 3 concert toms, snare drum, bell tree, 2 bass bows, brushes, piano
Web: *video recording*

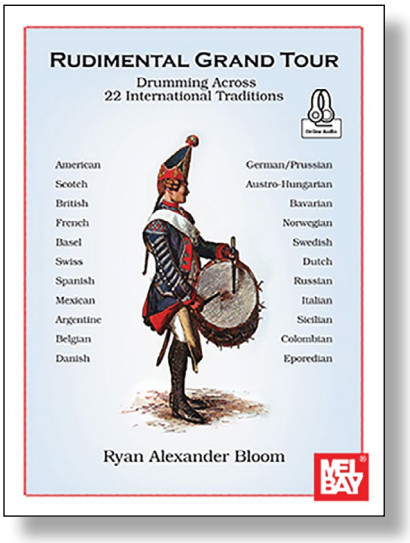
Whether good or bad, dark or light, there is a mysticism about the unknown that captures the human imagination. "21 Grams" by Caleb Pickering similarly captivates our ears and our minds with his loosely programmatic tone poem about the afterlife. The piece is inspired by the 1907 "weight of the human soul" experiments by Dr. Duncan Macdougall, "21 grams," which is also the namesake for the piece.

At nearly 13 minutes and with its 10-player percussion orchestra plus piano, "21 Grams" is an expansive work that primarily features two themes: the hymn "O Sacred Head, Now Wounded" and an original theme by Pickering that is reminiscent of the music of Maslanka or Gillingham. Individually, the parts are accessible for advanced high school or college players, although the marimba parts feature a few rapid scalar passages that are split between players. The runs are mostly chromatic and lay well on the instrument, but they require mature players. While all the parts are approachable, Pickering has woven a tapestry of parts with intricate polyphony. The players will need to be comfortable playing parts that move independently, as there is little doubling and each part is important.

"21 Grams" is an ambitious piece that leaves ample room for interpretation and will surely engage audiences with the majesty of the tone colors evoked by the ensemble. This piece comes with a bound score and loose parts. The score does not include a key but does clearly identify instruments and implement changes.

Note: there is a discrepancy between the score and parts. The percussion parts are notated in the score as *senza misura*, while the parts have barlines. The alignments are easy to follow visually, but the lack of barlines may add some time to your score study. Additionally, the unbound parts may lead to a few awkward page turns or a large number of stands if the parts are taped. Most of the parts are between four and six pages, and the piano part is eight pages. It may be a good option to consider digitizing the piece to play from a tablet. Despite these intricacies, "21 Grams" is an exciting new piece for the percussion orchestra repertoire.

—Quintin Mallette



SNARE DRUM METHOD

Rudimental Grand Tour III
Ryan Alexander Bloom
$24.99
Mel Bay Publications
Web: *sample pages*

This method book explores different rudimental styles from all over the world. With 15 countries represented, it is one of the most complete overviews of rudimental drumming styles. The book covers not only the standard American, Swiss, and Basel styles, but includes styles from such countries as Russia, Mexico, and Bavaria, along with many others.

The book is divided into different chapters, with each focusing on the drumming system of a particular country. Each chapter begins with a description and history of the drumming and follows with the primary rudiments from that country. Following that, there are examples from the repertoire of that style, which have downloadable sound files available on the publisher's website. The author states that performers should familiarize themselves with one system before moving on to the next. The end of each chapter includes a list of sources for those who would like to dig deeper into the style and its history.

This is an excellent resource for anyone interested in rudimental styles from around the world. Any percussionist, young or old, professional or hobbyist, would learn something from this book. It is a great way to explore these different styles and rudimental drumming history. Ryan Alexander Bloom's new book is indeed a grand tour of all rudimental drumming systems.

—Josh Armstrong

SNARE DRUM SOLO

[A]tudes – Volume II **V–VI**
Caleb Pickering
$24.00
Self-Published
Web: *score sample*

In *[A]tudes – Volume II*, Caleb Pickering provides another set of 26 advanced snare drum etudes sure to challenge any performer willing to tackle them. Following the same format as Volume I, the solos are each a single page with a variety of styles represented. Staying consistent with Volume I, these etudes continue with ideas of extreme dynamics, rhythmic density, and substantial ornaments. The influence of such composers as Tompkins, Pratt, Delecluse, and Lefevre are readily apparent, though as with Volume I, Pickering builds upon and utilizes these influences to create something wholly new and original.

Pickering states, "While there is no direct progression of difficulty between volume one and two…there is an inherent difference in style, mood, and rhythmic language between the two books." The Volume II etudes include several pop-music inspirations from Lamb of God and boyz2men to the second etude's development of Crazy Town's 1999 hit single "Butterfly." This variety of influences allows for each etude to stand on its own as a unique contribution within the collection. The composer suggests that someone wishing to program these etudes could utilize the alphabetical organization of the book in a variety of ways to create a suite of etudes appropriate for a graduate or professional recital.

Once again, Pickering has contributed a virtuosic set of etudes to the percussion community. Those willing to explore this collection will be rewarded with musical and technical pieces that will challenge their abilities as well as entertain audiences.

—Brian Nozny

TIMPANI SOLO

Knight of the Holy Kettles: Concerto for Timpani & Orchestra **V**
Kai Stensgaard
€40.00
Self-Published
Instrumentation: solo timpani (5–6 drums), full orchestra

"Knight of the Holy Kettles" is an exhilarating new concerto for timpani and full orchestra in three movements, totaling about 16 minutes in length. While the timpani part calls for five drums, the composer suggests one might prefer to use a sixth drum (most likely a second 23-inch), which would decrease the amount of tuning necessary during the timpani's melodic passages.

The piece begins proudly and joyfully, opening with an unaccompanied melody on timpani, setting the thematic basis for the movement. This idea is varied and recontextualized throughout, appearing all around the orchestra while the timpanist develops it through more ornamented and soloistic passages.

The slower second movement, marked "Grandioso," follows a similar formal plan to the first. The timpanist introduces a primary melodic theme, unaccompanied, which is then developed throughout with a simple melody and accompaniment texture. The material in this movement utilizes pentatonic collections and more lyrical melodic timpani writing, clearly contrasting with the opening movement.

The final movement is the longest and most varied, including several virtuosic quasi-cadenzas and myriad changes in tempo and style. This movement is the most difficult for the timpanist, even requiring the soloist to perform fast technical passages with four marimba mallets. It is an exciting *tour de force* with a timpani melody that gets stuck in your head!

While the solo part is most appropriate for an experienced timpanist, "Knight of the Holy Kettles" is not overly difficult. The work does not require any hard-to-find instruments or beating implements, making it an accessible and exciting choice for a university-level soloist and orchestra.

—Marco Schirripa

MULTIPLE PERCUSSION SOLO

C Note **Varying Levels**
David Macbride
$7.50
Media Press Music
Instrumentation: prepared bass drum
Web: *score sample, video recording*

In lieu of a traditional score, "C Note" consists of a list of instructions for the performer to follow. The main idea is that the performer fits inside an offstage bass drum and that one of the heads is made of thin material (the composer suggests vellum from an art supply store) that is taped in place and can later be destroyed. The bass drum is then carried or wheeled on stage. The performer is instructed to begin making sounds from inside the drum, trace a pattern visible to the audience on the false bass drum head with a felt marker, cut through the pattern with a knife, then poke additional holes through the surface, ending with the performer emerging from the bass drum.

The success and legitimacy of a work such as this lies entirely in the hands of the performer. Will they select and organize the sounds made from within the drum, as well as those made by the cutting, that work compositionally and contribute to the aesthetic of the performance? The composer makes no indication as to how the music should be constructed, although I was hoping for further instructions for determining sounds made inside the drum, similar to the "Composed Improvisation" works by John Cage. Without such considerations, musical aspects of the work can quickly take a back seat to gimmickry.

While "C Note" has potential as an intriguing opener to a percussion or new music concert, the performer will need to develop a solid game plan ahead of time that enables a legitimate musical experience for the audience.

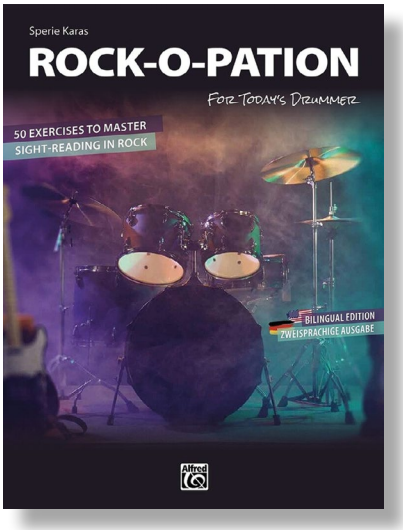
—Jason Baker

Drip **V**
David Macbride
$10.00
Media Press Music
Instrumentation: 7 graduated wood planks, woodblock, 5 graduated woodblocks, 3 graduated piccolo woodblocks

"Drip" is an intriguing work for a solo percussionist that draws upon the subtle timbral differences in several wooden instruments. Using a combination of traditional and spatial/timelapse notation, the overall form of the work reflects the contraction and expansion of note groupings. Sections are often accompanied with interpretive cues, such as "a portal of silence," "like crickets on a warm summer night in North Carolina," "a distant echo of the past," and "every note its own island." Mallet indications alternate between hard plastic and wood. I would imagine a performer might use a four-mallet grip to accommodate holding both, as to eliminate disruptions between sections.

Instrument selection and choice of performance space will have a significant impact on the effectiveness of a performance. The performer will have to be creative in determining a setup that allows ease of movement across 16 different sounds. For this reason, I believe a memorized performance would significantly add to the effect and enhance communication with the audience. A resonant performance space, such as a warm recital or concert hall, would highlight the rich tonal differences between the various wood instruments. At just under ten minutes in length, "Drip" could be the centerpiece of an advanced undergraduate to professional recital.

—Jason Baker



DRUM SET

Rock-o-pation: For Today's Drummer **III–IV**
Sperie Karas
$16.99
Alfred Publishing

Rock-o-pation is said to be the "rocking counterpart" to Ted Reed's *Progressive Steps to Syncopation for the Modern Drummer* (commonly known as *Syncopation*). Drummers have used rhythms from *Syncopation* to develop jazz coordination and build a solo vocabulary. Sperie Karas pays homage to Reed's classic book while offering a new set of exercises based on rock drumming.

Karas presents rhythmic passages that are to be applied in a number of ways. The reader is instructed to practice the rhythms on the snare drum before adding an underlying foot pattern. The rhythms can also be orchestrated throughout the drum set. Another application has the drummer alternating between a drum set groove and the notated rhythms in the book. The pages may

be practiced in smaller sections or played from beginning to end.

While Karas pays tribute to Reed's classic work, there are some clear differences. *Syncopation* is primarily based on rhythms, and *Rock-o-pation* also includes flams, drags, rolls, and dynamics. *Syncopation* is written exclusively in common time. *Rock-o-pation* starts in 4/4, then delves into other quarter-note-based time signatures such as 2/4, 5/4, 6/4, 7/4, 9/4, 10/4, and 11/4. Eighth-note-based time signatures are also presented, including 5/8, 6/8, 7/8, 9/8, and 12/8. Karas also includes a section with changing time signatures.

The book is presented in a bilingual format, containing English and German text. While the cover does not resemble *Syncopation*, the artwork of the first page and overall page design give the reader the sense that this book is adapted from Reed's classic. Karas did not imitate Reed's work; instead, he drew inspiration from it. In this case, it is possible that *inspiration* may be the sincerest form of flattery!

—Jeff W. Johnson

RECORDINGS

Argumenta
Mathias Reumbert and Anders Elten
Ekkozone

Argumenta features a collection of works for two percussionists performed by the Danish duo Reumert/Elten. The album opens with Philippe Manoury's "Le libre des claviers" for two marimbas, followed by two premiere recordings of compositions by Manoury as well as the transcription premiere recording of Maurice Ravel's "Le tombeau de Couperin," adapted by Mathias Reumert.

First, I really appreciated the track sequence of the album. While the instrumentation was similar throughout each of the pieces, the subtle changes from one track to the next created a sense of textural growth that captivated me. Additionally, I found the juxtaposition of the three works by Manoury and "Le tombeau de Couperin" quite striking.

While it is difficult to overstate the brilliance of Ravel's masterwork, my favorite recording was "Argumenta," the second track and most recent composition by Manoury on the album. As stated in the program notes, the title "evokes a kind of joust or conversation in which the two musicians exchange ideas and proposals that will serve as the basis for confrontations." It is clear to the listener when these musical conversations align or interrupt one another. Furthermore, the clarity of these exchanges is evidenced by the performers themselves, whose masterful ability as chamber musicians stands out from the first note to the last.

—Danielle Moreau

Crustal Movement
Kaze and Ikue Mori
Libra Records

Crustal Movement is the second album combining the improvisations of the four seasoned members of the established quartet Kaze with the impressively in-sync electronic musician Ikue Mori. Kaze consists of French drummer Peter Orins, pianist Satoko Fujii, her husband Natsuki Tamura on trumpet, and French trumpeter Christian Pruvost. The full album rests within the world of free improvisation, making the quasi-virtual project even more impressive to be done during a live performance lockdown. The ensemble connection is incredible, as if they are right next to each the whole time, collaborating and conversing from one idea to the next.

Peter Orins' percussion additions are always beautifully balanced and intuitive, avoiding overplaying or interrupting the flow created within the ensemble. His choices help to enhance the soundscapes and develop more texture throughout, rarely playing on a standard kit; rather, Orins adds modern percussive colors found more often in avant-garde percussion ensembles than on jazz stages. It is not until the final tune and title track, "Crustal Movement," that we hear a more substantial drum feature moment, but that eventually dies away to create space for Mori's electronic soundscape.

The addition of electronic components from Ikue Mori adds a phenomenal element and aural array of colors to an already diverse collaborative ensemble. An interesting example happens at the beginning of Mori's "Motion Dynamics." The percussion and trumpet begin with whisps, scratches, and rattles; and then electronic components subvert the texture with celestial overtones leading directly to subtle piano chords underneath that cloud. The shades and shifts draw the listener in, affecting eager and somewhat anxious anticipation for the next possible sonic journey.

There are moments when my brain drifts away from focus, only to then be surprised further by the musical turns in each piece. I am often most shocked by the more traditional sounds, like lush piano chords, clear rhythmic patterns, or lyrical trumpet melodies. But like in Tamura's "Rolle Cake," the groove is established and then disappears, replaced with ethereal electronic textures and colors. Impressively, Pruvost and Tamura's trumpet dialogue traverse this track and unify the work with their interplay.

Although the genre of free improvisation may not be accessible and exciting for everyone, all who listen should appreciate the creative and imaginative collaboration that came together for this album.

—Matthew Geiger

Denver Sessions
Dave Askren and Jeff Benedict
Capri Records

This is the fourth album by guitarist Dave Askren and saxophonist Jeff Benedict. For this project, they included the vibraphone playing of Ted Piltzecker, along with Patrick McDevitt on bass and Paul Romain on drums, creating a collection of tracks that utilize several different styles, but all of which include beautiful playing from incredible players.

The original compositions that make up the album are all unique in their stylistic approach. There are several Latin contributions, including the bossa "Marie Adele," samba "Poised," and Cuban-influenced "Rhumba Liam." "Ennui, Anyone?" lays back the swing, giving the sense of being in a jazz club near closing time. The edgiest tune, "Englewood Cliffs," drives ahead and gets distorted and crunchy in the build-up of the saxophone and guitar solos, giving a few moments of a rock feel. The album ends with an arrangement of the classic "Stompin' at the Savoy," which this quintet plays with a Latin flavor in a complex meter, certainly making the tune their own.

Romain's drumming throughout the album is best described as tasteful. Whether he is pushing forward in "Englewood Cliffs" or laying back the swing groove of "Ennui, Anyone?" everything he plays fits perfectly. Even during his featured moments in the energetic "Orange Express," he choses taste and musicality over note-density and flash. This includes using space in his solos, allowing his music to breathe.

Piltzecker's vibraphone playing is spectacular. Not only does he perform some fantastic solos throughout the album, he also provides comping and accompaniment that adds character when his colleagues are featured. This especially stands out in "Ennui, Anyone?" where his light touch during McDevitt's bass solo adds a layer of atmosphere to the soundscape.

If you are looking for an album to listen to while sitting out in the summer sun, *Denver Sessions* comes highly recommended. It is easily enjoyed by the music connoisseur and the casual listener. The music compiled is beautifully performed by a quintet of top-notch performers, who were obviously having fun with the project.

—Kyle Cherwinski

Just Ahead
Patrick Fitzgibbon
Self-Released

Patrick Fitzgibbon certainly plays the role of multi-percussionist on this Latin-jazz inspired album. While the ensemble is actually a trio (with bassist Takashi Iio and guitarist Ray Urenia), it sounds like a much larger ensemble. This is due to the layering of multiple parts. Fitzgibbon often plays drum set, congas, steel drums, vibraphone, and auxiliary percussion on the same piece. Mark Beyerly did an amazing job of blending these parts together in the studio.

All tracks were written by Fitzgibbon. "Bayse Base" features a beautiful, recurring guitar melody as well as vibraphone and steel drum solos. The title track, "Just Ahead," has a laid-back 6/8 feel. "Milk Police" hints at a hip-hop feel, while retaining the Latin/jazz roots heard throughout the rest of the album. "Look Up" begins with a soft-rock feel, increasing intensity throughout the track. Other compositions include "Serve That Answer," "Every Way but Forward," and "Blanchisseuse." The album closes with "Jumbie," a driving, Brazilian-inspired tune featuring solos on guitar and steel drum. While this is an album by a percussionist, it contains melodic compositions that can be appreciated by all audiences.

—Jeff W. Johnson

Live at The Café Bohemia
Leap Day Trio
Little (i) Music

Live at The Café Bohemia is the first live recording made after the reopening of New York City's The Café Bohemia. Recorded over two days — February 28 and 29 (Leap Day) 2020, and after only two rehearsals — the album is a true capturing of the live and raw New York jazz scene.

Leap Day Trio is made up of drummer Matt Wilson, bassist Mimi Jones, and tenor sax player Jeff Lederer. The trio's debut album is improvisational and exploratory, presented as it was recorded with all of the live elements and incidental magic that can only come from a live show. The tunes are long, with all players taking extended solos and showing off the full range of their skills. From a drumming perspective, Wilson demonstrates what is possible with a standard jazz kit, both lyrically and groovy.

The three players masterfully interweave improvisatory lines and follow each other down each alleyway and into the weeds before meeting back in the center of the tune without missing a step. They aren't shy about leaving space and letting each instrument breathe. The sparseness of the ensemble gives a barebones feel to the recording that makes listeners feel as if they are sitting at a table right in front of the stage in a dark venue past midnight, sipping on a scotch neat.

Live at The Café Bohemia is not for casual jazz listeners or the uninitiated without a trained ear for nuance and technique. The album is jazz for jazzers and pays tribute to the greats of the genre who performed and recorded at The Café Bohemia in its past heyday. It is clear from the energy of the recording that the audience at the live show got exactly what they came for: the triumphant relaunch of a legendary live-music venue.

—Marilyn K. Clark Silva

Six Japanese Gardens
Shane Jones
Equilibrium Recordings

As stated by Shane Jones in the liner notes, "[This album] explores personal themes of multiple selves in relation to time." The six-movement title work by Kaija Saariaho is at times haunting and meditative, while aggressive and almost chaotic at others. This is appropriately reflective of life itself. The second piece, "Loops II" by Phillipe Hurel, is for solo vibraphone. The piece shows the idea of change through repetition over time. The varied articulations required across the ten-minute work are clear and precise. Not a single note is lost to the wash of the vibraphone sustain. "Ultimatum I" by Nebojša Jovan Živković is an aggressive and powerful work for solo marimba. Within the chaotic bursts, there is a dance-like quality in odd-meter, which is so characteristic of a work by Živković.

"Hair, Cloth, and Thread" by Valerie Coleman is written in six movements and features Joanna Goldstein on flute. The piece is based on visual artist Sonya Clark's "Hair Craft Project." The composer states, "The work incorporates a variety of flutes and percussion, weaving artful soundscapes from the textiles Sonya uses as a medium: Afros, dreadlocks, and braids." The final track is "How Sweet the Thought of You as Infinite" by Emma O'Halloran for solo marimba and electronics. The piece, according to the composer, is "about the longing we have for certain moments to last forever." This introspection is a fitting way to end an album that has been a journey through the human experience.

The album is crisp in its production, beautiful in its design, and exquisite in its musical quality. Bravo to Shane and the production team for this triumph.

—Justin Bunting

Tears of a Cloud
Taiko Saito
Equilibrium Recordings

Taiko Saito's solo improvisatory album *Tears of a Cloud* is an expressive, satisfying journey through textured terrain that is occasionally familiar but consistently interesting. The album lies somewhere in the realm between ethereal sonic exploration and unyielding percussive activity, and the performer's command of both the marimba and vibraphone is evident throughout. If one were to play the album as background music it would be easily forgettable, but dedicated and active listening sessions will reward audiences with a thoughtful, nuanced encounter with a talented improviser and composer.

One of my favorite tracks is the marimba-centric "Angry Bee," which follows the titular "Tears of a Cloud" and is the only track not recorded in a studio, but instead at the Berlin Solo Impro Festival. There's more than a little Keiko Abe influence in that track, but that isn't the only reason I like it; the whirlwind of activity belies a true act of intentional, spontaneous composition, rather than formless noodling, and scratches the dual itches of virtuosic showmanship and cerebral sophistication.

One of my other favorites is the final track, "Distance," in which the performer returns to the vibraphone for a patient, well-paced blossoming of sonorities that manages to give a sense of direction without outright hurtling towards any particular destination. I would happily recommend giving a listen or three to this album as a great example of effective improvisation.

—Brian Graiser

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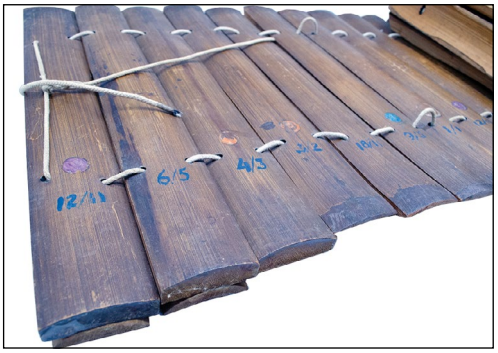
Ratio-Temperament Bars for Ranāt Ēk Xylophone

Gift of Emil Richards. 1993.02.27 and 1993.02.12

The *ranāt ēk* is a featured instrument in the *pī phāt* ensemble from Thailand. It is a 21-note trough xylophone on which the hardwood or bamboo bars are strung in a single row over a curved, ornately-carved, wooden resonating box or chamber. The instrument, as well as the other instruments of each *pī phāt* ensemble, is constructed using a unique heptatonic tuning based on locality. This *ranāt ēk* is featured on page 57 in the Emil Richards *World of Percussion* book and has a seven-tone scale tuned to unequal tones that do not correspond to the 12 pitches of Western equal-temperament tuning.

Pictured on page 58 of Richards' book is this substitute set of 21 bamboo bars, having a 3-octave range, which can be mounted on the *ranāt ēk* trough. These bars were tuned in fractional ratios for a 7-note (heptatonic) scale by Harry Partch and differs from the original heptatonic scale for the instrument. Each bar is marked with its fractional ratio on the front in blue paint and on the back in pencil. The back also has the bars numbered sequentially from 1 to 21. The seven ratios, from low to high, are 12/11, 6/5, 4/3, 3/2, 18/11, 9/5, 1/1 and correspond to the pitches A, B-flat, C, D, E-flat, F, and G. The scale sounds close to either a B-flat major or G minor scale. In addition, there are blue, orange and purple symbols drawn on the front of the bars near the painted ratios. The largest bar is 15 inches in length with a 1-inch depth, and the entire row of 21 bars measures 38.5 inches long.



Detail showing the top of the bars with ratio numbers and colored symbols.

Detail showing the bottom of the bars with ratio numbers and sequential numbering.

The ranāt ēk, which is played in octaves using two yarn-wrapped mallets, is the primary melody instrument of the *pī phāt* ensemble in Thailand. The full complement of instruments for a *pī phāt* ensemble consists of xylophones, metallophones, pitched gongs, drums and cymbals, all of which are carefully tuned to each other using paste, lead shavings, and beeswax.

—James A. Strain, PAS Historian

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