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SECTION 2 – Keyboard and Timpani Technique

SECTION 3 - Exercises

Contents continued...

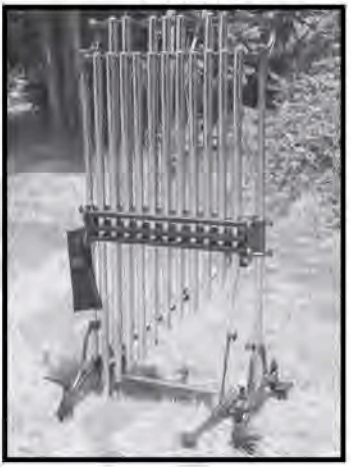
MARIMBA

The marimba is one of the most important instruments in today's pit ensemble. Its warm tone, depth, and color are essential to the overall sound of the group.

Standard range 4 to 5 octaves: (sounds as written)

The best sounding marimba **bars** are made of **rosewood**. Though rosewood is a fairly durable material, it can be quite fragile when you consider how thin a marimba bar can be, especially in the lower register. Still, rosewood marimbas have an unsurpassed resonance and tone quality, and are the standard to which synthetic barred instruments are compared Unfortunately, there is a downside. When exposed to sunlight, rosewood instruments tend to "dry out" and sound a little "dead." Rosewood bars can also go out of tune, temporarily, when subjected to extreme heat. Also, rain and humidity are "evil" realities that will take no pity on your poor rosewood bars. With proper care, using rosewood marimbas outdoors can be a wonderful thing. However, you need to have a plan on how to cope with the elements that Mother Nature will inevitably throw your way. (see page 90)

CHIMES



Often mistakenly called "tubular bells," chimes are another standard member of the pitched percussion family. Made of long, thick brass tubes, chimes have a very noble sound that blends well with a variety of instruments.

Range: 1½ octaves (sounds as written)

All chimes manufactured today have a **dampening mechanism** similar to that of a vibraphone. Chimes have a lot of "ring," so for concert use, the dampening mechanism is quite useful. For outdoor use however, it's not quite as important. From a distance, the listener doesn't hear all of the "ring" that the chime player hears. This is also true with the vibraphone. The ringing over of these tones can "fill out" your ensemble sound and help to project the sound of these essential metallic instruments.

Drums, Cymbals, and Gongs

Now that we've discussed keyboards and timpani, it is time to move on to the non-pitched "essentials" of the pit: drums, cymbals, and gongs. These instruments can enhance melodic passages, supply accompaniment, provide an infinite amount of color and rhythmic drive, and most of all, serve up powerful impacts.

CONCERT BASS DRUM

The concert bass drum is an absolutely essential piece of equipment for a pit. Not only will it deliver powerful impacts, but with some creativity, it can provide your pit with a wide array of color. For example, experiment with brush effects, try different keyboard mallets for "brittle" sounds, invest in a nice pair of rolling mallets to achieve thunderous rolls or quiet rumbles. Some groups have experimented, with great success, using 3 or 4 bass drums in the pit. This can produce overwhelming sounds!

Concert bass drums come in several different **sizes**. A good general size is 36" in diameter. There are several types of **stands** on the market as well. Make sure whatever stand you choose has large casters and allows the drum to vibrate freely. "Suspended" style stands often work the best. Replacement bands and bungees can be found in most hardware stores.

Here the drum is suspended in a hoop with large rubber bands or bungee cords.

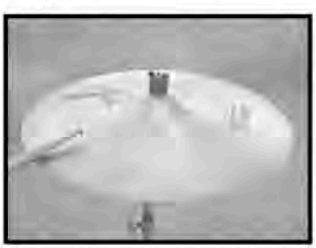
A few suspended cymbal tips...

Don't overplay the instrument! Each cymbal has a "ceiling," or limit, as to how loud it is physically capable of playing. Beyond this ceiling, its tone turns to distortion. While it may seem like playing the instrument "harder, faster, or higher" will make it louder, actually the opposite is true. Since this distorted sound is less pure, it doesn't carry as well, and it's basically just "noisy." There may be a few moments where this could be an "effect," but for general playing, it should be avoided. This is the one rule that is broken most often by inexperienced players.

Rolling: There is usually no need to roll very fast, as the sustain of the cymbal should produce most of your sound. Roll just fast enough to keep an even sustain. At lower volumes, the roll will be slower. At higher volumes, the roll will be faster. As with timpani, bass drum, or keyboard instruments, the roll speed on suspended cymbals should be determined by the needs of the music.

Roll on the cymbal at the edge, with each hand directly across from each other.

Avoid crashing on suspended cymbals with plastic xylophone or bell mallets. This may sound obvious, but again, it's amazing how frequently inexperienced performers do this. Not only does it sound bad, but it's a quick way to crack your cymbals. If the performer doesn't have time to pick up a softer mallet or drumstick, have someone else play the part who has a more appropriate implement available. No cymbal part is so important that you have to clang through the ensemble with lexan mallets on a 17" cymbal.



When **crashing** *on a suspended cymbal with a stick, play the edge of the cymbal with the shoulder of the stick. This will give you the fullest sound from the cymbal.*

For a quicker, brighter sound, crash with the shoulder of the stick on the bow of the cymbal (left). With covered mallets, crash as close to the edge of the cymbal as you can (right). This will produce a clear attack sound and a full spectrum of overtones.

Other Percussion Instruments

The percussion family is without a doubt the largest and most varied collection of instruments in the world. There are various smaller percussion instruments, sometimes called "accessories" or "auxiliary percussion," that are quite common in marching bands and drum corps. For the purposes of this book, these instruments have been categorized into three classes: **Accessory Percussion, Special Effects, and World Percussion.**

Accessory Percussion (listed alphabetically)

ANVIL (and related instruments)

The following instruments are known for their "aggressive" metallic sounds: anvils, brake drums, oxygen or propane tanks, railroad tracks, frying pans, Remo Spoxe, and metal pipes. In fact, a few hours at your local salvage yard or automotive wrecking facility will help you to unearth even more goodies that would fit nicely in this category. A fresh coat of paint will give them that fancy "store bought" look.

These instruments are typically played with very hard mallets (or even hammers) to achieve bright and piercing sounds. These instruments are also known for *destroying* very hard mallets (or even hammers)! In other words, you may not want to pull out your best xylophone mallets for the frying pan cadenza. On the gentler side, these instruments can create some very unique sounds when played with soft rubber or hard yarn mallets. For example, three to four brake drums of different sizes, played with soft mallets, can provide a wonderful nipple gong type sound. Experiment!

BELL TREE

When played with a hard xylophone mallet or brass mallet, the bell tree will provide a brilliant bell glissando effect. What's great about this effect is that there is not too much sustain, in other words, it gets out of the way very quickly. This can be crucial in certain ensemble situations. Also, experiment with striking individual bells on the tree. This can be a great sound when definite pitches aren't a concern.

As for the actual triangle, the **6-inch size** is a good place to start. Alan Abel and Neil Grover make outstanding triangles, which are highly recommended. Other sizes can add some great colors to your palette (4-inch or 9-inch). If you've spent a good amount of money on your triangle, you will want to play it with actual **triangle beaters** (as opposed to tension rods, drum keys, screwdrivers, drumsticks, or anything else you may find on the band room floor).

As for playing the instrument, we've all heard the story about holding the triangle up at eye-level so everyone can see you perform proudly. Not only does this allow people to see the instrument, but this will also allow you to **strike** the instrument correctly. The triangle should be struck at a 45 degree angle in order to get all of the overtones to "speak." If you strike the triangle "flat" to the playing surface, you will get a distinct pitch. This isn't what we're looking for in a triangle sound.

This is an example of a bad grip and improper playing angle.

Striking at an angle produces prettier overtones. Be sure the beater is very relaxed in your hand, this will help you avoid a "clanky" sound.

The triangle can be **dampened** *with the holding hand by tightening your fingers around the instrument.*

Rolls can be played by placing the beater inside the triangle and alternating between two sides of the instrument. If you roll between three sides of the triangle you are playing "dinner-time" style. This should be avoided unless you are performing on a dude ranch...then by all means, play this way.

Sometimes the performer does not have a free hand and has to **hang** the triangle. This is perfectly acceptable, but try to avoid hanging the triangle on a stand that will vibrate, like a music stand. Try using a small piece of ply wood mounted to a cymbal stand (as pictured here). This will also allow the performer to play fast passages with two beaters. Remember, the triangle still needs to be hung high enough for the performer to strike at the proper angle.

photo courtesy Rob Graff

WIND MACHINE

A wind machine is an unusual contraption. It has a cylindrical spool with wooden blades and draped over the top of this cylinder is a heavy piece of canvas. When the spool is cranked by a handle, the blades rub against the canvas and this friction results in a "wind" effect. There is a great wind machine part in the last movement of Grofé's "Grand Canyon Suite."

World Percussion Instruments

You don't have to be world percussion expert to add the following instruments to your pit. You should, however, try to learn enough about these instruments to feel comfortable teaching or performing on them. Our hope is to familiarize you with the instruments and discuss their application. Discussing technique on each of these instruments could fill another 5 books! Fortunately for all of us, there are literally hundreds of instructional videos available today. Start by checking out the Steve Weiss or Lone Star Percussion catalogs.

All of the following instruments are associated with one or more traditional styles of music. Besides the music that these instruments are usually associated with, there are also **non-traditional applications**. Sometimes it's all about getting a specific sound into your musical score. You don't have to play samba music to apply the powerful sounds of surdos, or African music to use a talking drum. Be creative and let your own good taste guide you.

Hand Drums

CONGAS

Congas are an essential part of Afro-Cuban music as well as many other styles of Latin music. The drums come in **three sizes**: (from smallest to largest) quinto, conga, and tumba. The shells are made of either wood or fiberglass, and the **heads** are made from skin (calf, mule, or water buffalo) or are synthetic. Maintaining skin heads outdoors can be very difficult. This is why most marching bands and drum corps prefer synthetic heads (made by Remo or Evans). For outdoor use, it will also be important to invest in good quality **stands** for the drums. This will allow for maximum tone and projection.

This is a Soundcraft Spirit E12, 12-channel mixer. Larger ensembles may need a 16-channel mixer.

MIXING BOARD

The mixing console is the "grand central station" of all your electronic and amplified devices. It controls the main volume output of *all* instruments, as well as the signal volume of each *individual* instrument. Here is where you can really **balance the mix** to your liking. In addition, most mixing boards allow you to adjust the equalization of each input (treble, bass), as well as any effects processing that may be connected (such as reverb). This is the "last stop" before the audio signals are sent to the speakers for your audience to hear.

Mixers come in a variety of configurations. The type of mixer you buy will largely depend on how many channels you want to run, and whether you want to process mono or stereo channels (or most likely a combination of both). If you are connecting stereo devices (samplers, keyboards, other sound modules, etc.) into mono mixer channels, it's important to reserve *two* mono channels for each stereo device. Each microphone in your setup will typically only need one mono channel. Be sure there are enough XLR inputs on your mixer if this is how you intend to connect your microphones. Some mixers only contain a limited number of XLR inputs (like Mackie's 1202-VLZ which is a 12-channel mixer, but only contains 4 XLR mic inputs).

Mackie is well-known for their mixing boards, and you can get a good, low-cost choice with their 1202-VLZ or 1402-VLZ models. Another option would be to check out the Soundcraft Spirit E series, or Yamaha mixers. When shopping for a mixer realize it may be worth some extra expense for added flexibility in the future. Your mixer will be one of the most important elements of your setup.

In this rack configuration, you see the Akai Z8 sampler, Lexicon MPX-200 effects processor, and BBE 882 Sonic Maximizer .

SOUND MODULES/SAMPLERS

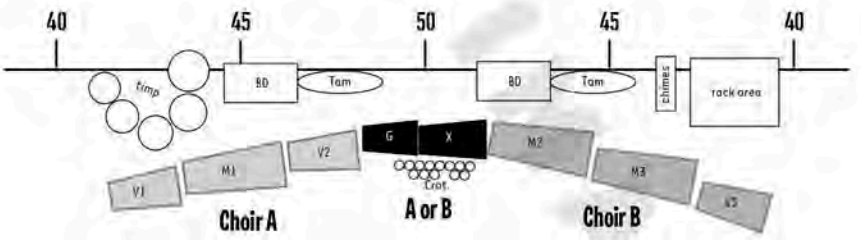
Now that you have the ability to amplify acoustic instruments, what about electronic sounds? This is where your **sound sources** come in. Oftentimes, electronic keyboards will come with a slew of on-board sounds – thus making it a **"sound module."** You can also purchase separate modules (usually mountable in a rack configuration without a keyboard) which will offer you more sounds to choose from. Many of these modules are expandable by adding cards containing even more sounds. **MIDI** (Musical Instrument Digital Interface) will allow all of your modules and controllers (page 74) to communicate, share, and layer sounds. As you can see, the possibilities are endless.

The pit setup

Now that you have purchased two of each of the instruments mentioned above, it's time to develop a setup. There are two basic thought processes involved with the placement of the instruments on the performing field. One thought is that the musical score and the percussionists' needs will dictate where the equipment is set. This can be a very useful setup process for smaller groups with only a few instruments. A second thought process involves developing the setup first, then writing a score that will take advantage of the placement of the instruments. This takes a bit more planning and thought, but the end results can be very effective. This second process works well for larger groups with several instruments. Below are a few popular setup plans.

THE KEYBOARD "CHOIR" SETUP

This setup involves grouping one or two of each of the main keyboard instruments into a choir. A large pit could have several choirs within the ensemble. For example, you could have one choir consist of a marimba, a vibraphone, and orchestra bells. The second choir, staged apart from the first choir, could consist of another marimba and vibraphone, and perhaps a xylophone. These two choirs can perform independently, or perhaps "converse" with each other, and since they are close to each other, they can play in unison for tutti sections. This is an extremely versatile setup.



Example of a keyboard choir style setup

Instrument care and maintenance

Care and maintenance of your expensive pit instruments should be a daily concern. Instruments should be checked and cared for before and after every rehearsal. **Preventative maintenance** can save you thousands of dollars in the long run. Here are a few tips to get you started. Make sure every pit member and pit crew member is familiar with this information. You may want to create your own information packet to hand out to each person involved with the process.

A well-organized pit "maintenance" box can really make a huge difference in handling common equipment dilemmas.

"PIT MAINTENANCE BOX"

This is an absolute must! Find an old tool box or tackle box and fill it with everything you'll need in case of a pit emergency. Here is a short list of items to include.

- Keyboard cord
- Tam tam rope
- Scissors
- Felt washers for cymbals (all sizes for hi hats and suspended cymbals)
- Nylon cymbal sleeves (surgical tubing)
- Wing nuts for all stand sizes and Keyboards
- Oil or WD40
- Duct tape
- Fishing line
- Drum keys
- Timpani key
- Masking tape
- Timpani and bass drum mallet Replacement felt
- Bungee cords
- A lighter
- Tuner for timpani
- Metal washers for cymbal Stands
- Screwdrivers
- Allen wrench set
- Pliers
- Teflon tape

You may also want to keep these items close by for general maintenance

- cymbal polish
- cleaning rags
- touch-up paint or spray paint
- black magic markers
- Windex
- spare heads for all types of drums

Keyboard Technique

A solid foundation in technique will provide you with the ability to express yourself musically. It is important not to lose sight of this. Perhaps you've seen one or both of these scenarios. A student practices scales all the time and knows all of the exercises, but struggles with show music and solos. Or perhaps you've seen a performer who knows all of the latest solo literature, but can't figure out why they keep hitting wrong notes or why their dynamics are monotone. These scenarios are quite common. Students must learn to apply technique to music and learn to make music while practicing technique.

Stance/body position/posture

Good technique starts with having a good foundation. Good posture will allow your body to most efficiently do its job. Playing keyboard instruments can be a very physical activity, so it's a good idea to give yourself a few guidelines to follow.

In general, your **feet** should be about shoulder width apart, keeping your **knees** relaxed and your **back straight**. Also, **don't cross your legs**. This may sound obvious, but sometimes players have to "travel" to different ranges of the instrument (especially on marimba). If this is necessary, move your stance as little as possible.

It's important to note how far back from the instrument you are **standing**. It is common for beginners to get very close to the keys, sometimes so close that their pockets are brushing up against the bars. Not only will this dampen the bars, but it puts your arms and elbows at somewhat of a "cocked" position. This will make it difficult to play a proper stroke and stay relaxed.

Vibe players will need to keep one foot forward for pedaling. Remember that you don't have to use your entire leg to pedal! Try using just your toes or the front of your foot to pedal. This will help you keep your balance and keep you from "over-pedaling."

Important Concepts

Before we dive into the exercises, here are some important concepts and practice suggestions.

Legato Stroke

In this case, the word legato **refers to the look of the stroke** (smooth and connected) rather than the sound that it produces. This style of stroke requires the same speed on the downstroke and the upstroke. This is an excellent general purpose stroke and will be used for most of the exercises.

Piston Stroke

The piston stroke has no noticeable "prep" before the downstroke or added lift after the rebound (you rebound back to where you started). By removing the unnecessary movement of the mallet, we have created a more efficient and accurate stroke. This stroke requires a downstroke that accelerates and an upstroke that decelerates (like dribbling a basketball). There should be a **noticeable pause between strokes**. The piston stroke is excellent for slower passages that demand the utmost accuracy and for practicing double verticals and shifting.

Shifting

Shifting is the movement from one tone bar to the next. The shift occurs **during the rebound of the stroke**. As the mallet is rebounding off of the tone bar, it should move in a smooth arc and stop directly over the next tone bar to be struck. If the shift occurs too late (after the rebound), your arc will be "squared off." Efficient shifting will lead to greater accuracy and consistency.

Ideo-Kinetics

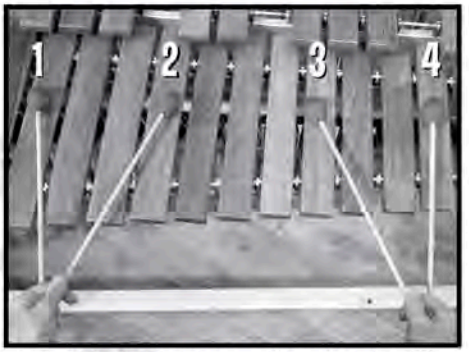
This fancy word means that you use your muscle-memory, or kinesthetic sense, to play notes outside of your field of view. This is a great tool to improve your sight-reading ability and accuracy during demanding passages.

Flow

This is the ability to combine the above concepts and guidelines into one fluid idea. This will allow you to see and experience the "bigger picture" in music (musical and rhythmic phrases, dynamics and expression). This is a big part of becoming a great performer.

Playing Zone Suggestions

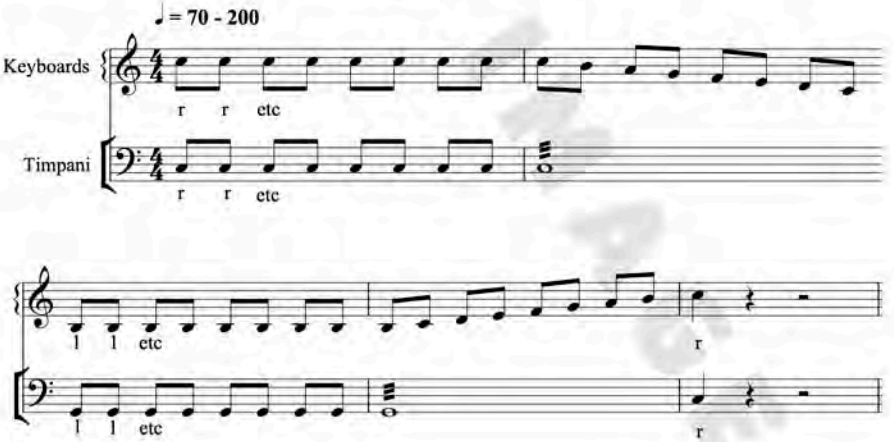
As noted in chapter 2: For exercises that require a lot of movement and speed, try to play in the middle of the bar for the natural notes and on the edge for flats and sharps. When you play on the edge of the bar, try to play on the angle of the bar, as if you're slicing the mallet head in half. Playing on the center and edge will allow for maximum speed and fluidity. For other exercises, such as the Modular Four-Mallet Exercises, which don't require a lot of movement and speed, play in the middle of the bars for the majority of the time. Ultimately, this is the choice of the instructor. Try to take each musical situation as it comes and then decide what will allow you to play with the most fluidity and the most consistent sound.



In this book, when referring to 4-mallet stickings they will be numbered as illustrated, left to right, 1-2-3-4.

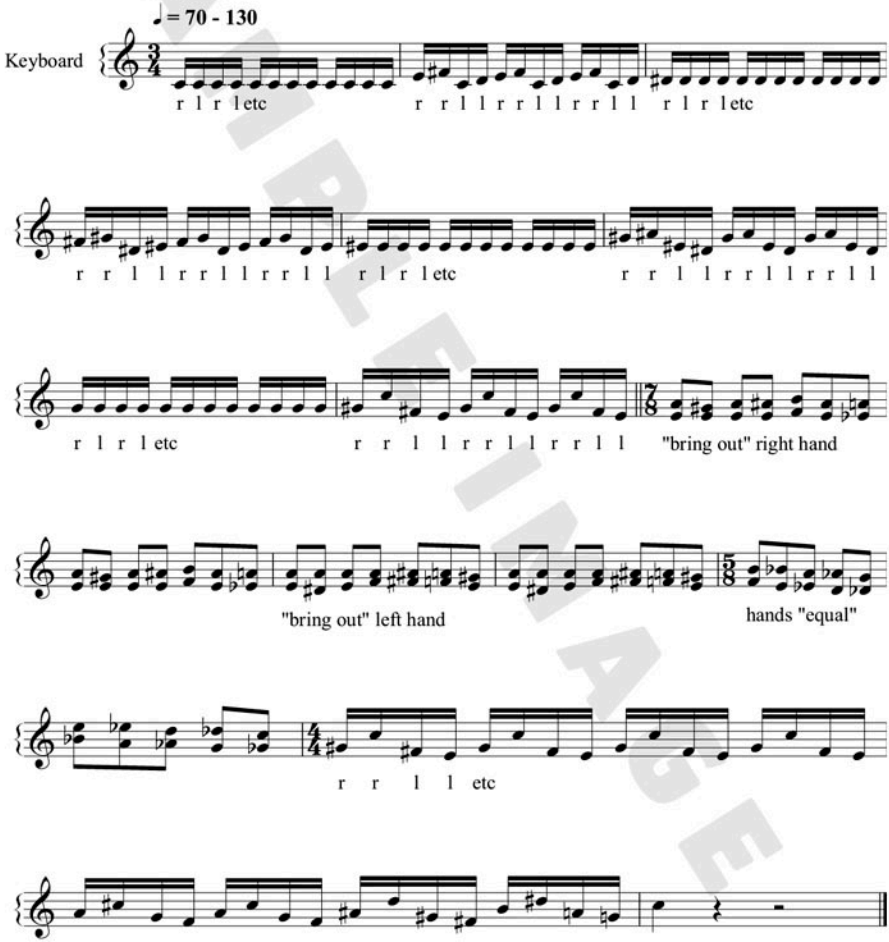
Singles

This exercise was designed to isolate and develop the legato stroke. Strive for smooth motions and a consistent sound. You can start with major or minor scales and then move on to any mode. Try this exercise with a variety of dynamics and accent patterns. When you are comfortable playing it with two mallets, try it with four (using any combination of stickings).



Stick Control

This exercise focuses on many "real world" issues. First, it focuses on getting a good double-stroke, but notice that the double strokes are always on two different pitches. This stroke is a necessity (look at ragtime music or *Porgy and Bess*, for example). Make sure you hear no difference in rhythm between the alternating bars and the double-stroke bars. Keeping a relaxed legato stroke throughout will help with this. The next stick control issue is in the $^{7}/_{8}$ section. Here you must "bring out" or raise the dynamic of each hand. You can accomplish this by firming up the fulcrum and playing a faster stroke or by simply raising the stroke height of that hand. Either way, you need to avoid flams.



Modular Four Mallet Exercises

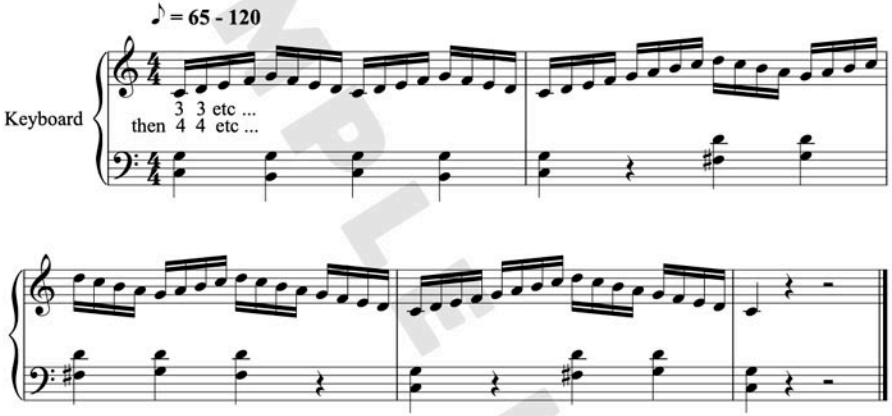
These basic exercises are your starting point for developing four mallet technique and coordination. Though they may look simple, don't underestimate the usefulness of these exercises! They are meant to pinpoint specific technical problems. Start by playing each exercise one hand at a time. When the exercise feels comfortable, cycle through the major and minor keys. Next try to play the exercise in both hands simultaneously (some of the exercises can be played one octave apart, others will need to be played two octaves apart). The next step is to try different exercises in your left and right hands. At first, start with two exercises from the same category (two vertical stroke exercises for example). Then try exercises from two different categories (a vertical and an alternating for example). Now the real fun begins. Next try adding different dynamics, accents, and timbres (bright or dark) in each hand. The combinations are limitless!

Try to avoid the temptation of playing through many combinations without mastering them. Find a few combinations you like and stick with them for a few weeks.

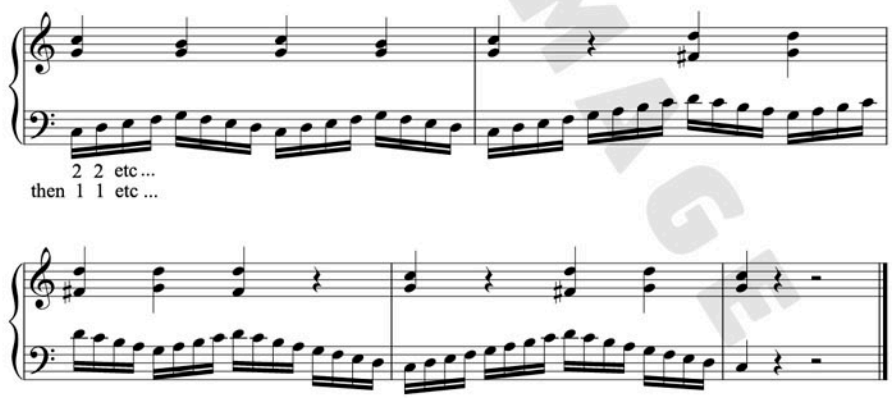
Two-Handed Scales

This exercise was born from the modular four mallet exercises. It is extremely difficult and should be played very slowly. The hand that is playing the scale passage should use a legato stroke and use natural phrasing to shape the line. The "comping" hand uses a piston stroke and must focus on shifting, shaping and balance. There's a lot to think about! Stick to one key until you get the technical concepts down. Then you can try other major or minor keys (the comping notes stay the same for major and minor).

Right Handed



Left Handed



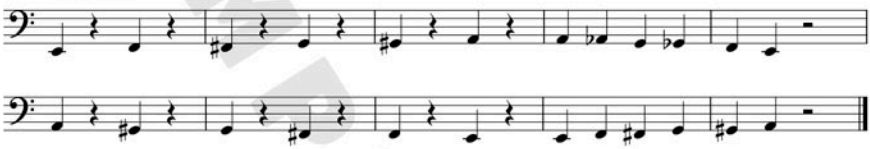
TIMPANI EXERCISES

Chromatic Pedaling

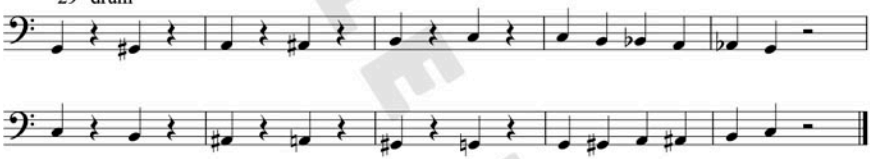
This exercise is meant to familiarize the timpanist with each of the drums. First, make sure you can sing each of the exercises in your own voice range. Play each exercise very slowly, in a legato style (dampening only during rests). For some thoughts on pedaling technique, refer to page 115. Next, experiment with different dynamic shapes and accent patterns.

♩ = 55 - 100

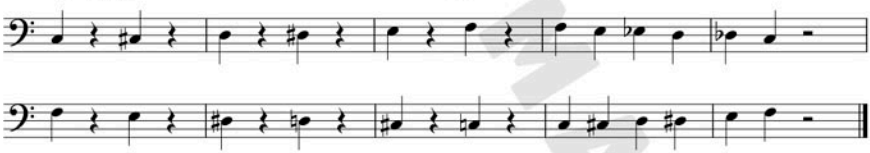
32" drum



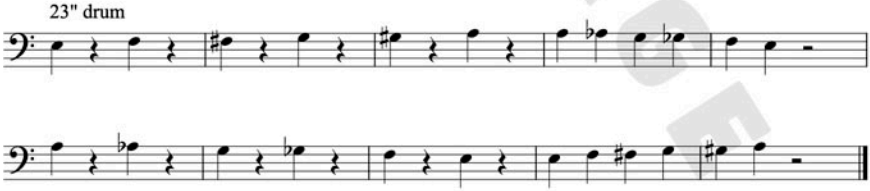
29" drum



26" drum



23" drum



REHEARSING THE PIT

This chapter was written for the instructor and contains advice for running effective rehearsals and performing consistent shows.

Warm-up Concepts

The technical warm-up is a crucial part of your pit program. Here you can take the time to develop all aspects of technique and musicianship. The following are some ideas used by the Santa Clara Vanguard to produce effective warm-up sessions.

The Setup

Start by looking at the setup of the instruments. Some pits warm-up in circles or place their keyboards in a tight box shape. This can be effective in certain situations. For example, try having keyboard players pair up, facing each other, to work on interpretation and dynamics. This setup is also good when space is limited. However, it is very important to **duplicate your "show" setup in the warm-up**. Vanguard warm-ups typically include all keyboards and timpani in their normal show setup.

Proper Mallets for Warm-up

The next issue to deal with is getting the proper mallets in the hands of the players. After reading the section on "touch" (page 109) you know that the hardness of a mallet has a big impact on the firmness of the fulcrum. A softer mallet will make you work harder to articulate the notes than a hard mallet. For this reason, many players prefer mallets that are not too hard. On the other hand, you don't want a mallet that is so soft that all you hear is a "wash" of sound. Here are the mallets (by Innovative Percussion) that the Vanguard pit often uses for workouts: marimba (top) Casella 1003, marimba (bottom) Casella 1002, vibes Casella 1006, xylophone Casella 1007, Ross IP 901, or Ross IP 903, timpani Vic Firth General. Though all of these mallets have medium-hard to hard cores, they all have a soft contact sound on the bar. This is due to the fact that they all have a soft yarn, cord, or felt covering. This takes away much of the harshness and gives them a dark, round sound. Also, notice that all of the xylophone mallets are medium-soft to medium; this prevents the xylophone sound from dominating the ensemble.

Laying out the score

Let's start with a blank slate. At this point, **you need to know what type of equipment you are working with, the setup, how many players are in the ensemble and their ability levels. Now you can lay out the score page.** While there are several ways to lay out the score, it will help you keep track of your players if you create **one staff line per player**. If you have 8 players in the pit, create 8 separate staves to accommodate them. Here are the two most obvious ways to do this:

Creating a personalized staff for each player

This method is most appropriate if you rotate your players to different instruments throughout the show. It also works well if you have a strong knowledge of your player's capabilities. By creating a personalized staff for each player, you are creating a **"custom made" part** for them. This will help you to write for the strengths and weaknesses of the ensemble. Also, anytime you want to address a certain player during rehearsal, you'll know exactly where to locate their staff line on the score.

Check out figure 5-A, and you'll see the staves named after each player in the pit. In order to keep track of who is playing on what instrument, it's important that you create labels in the music to indicate what instrument is being used.

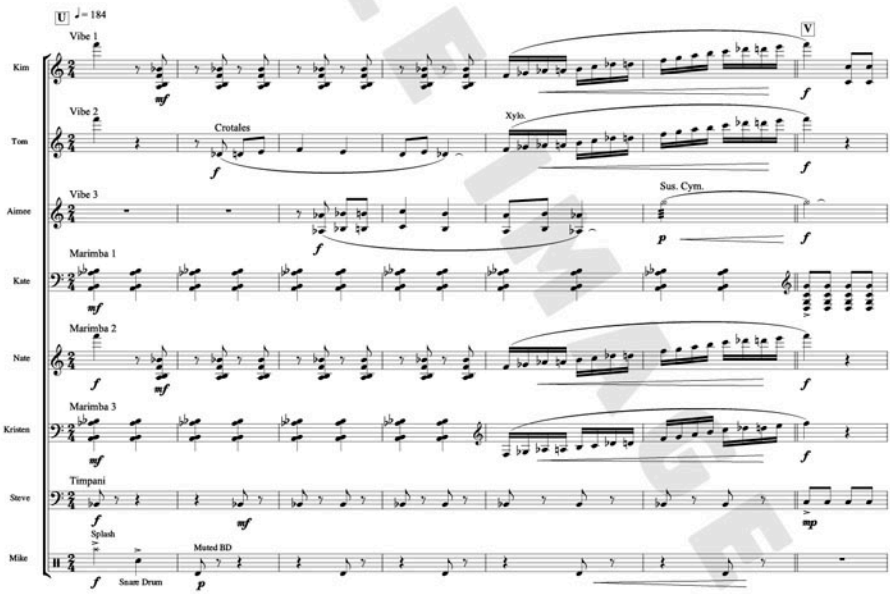


Figure 5-A: Pit score sample from SCV's opener in the year 2000