A survey of multiple percussion notation with an emphasis on timbre staff notation and setup

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A SURVEY OF MULTIPLE PERCUSSION NOTATION WITH AN
EMPHASIS ON TIMBRE STAFF NOTATION AND SETUP

by

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Doctor of Musical Arts

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ABSTRACT

A Survey of Multiple Percussion Notation with an Emphasis on Timbre Staff Notation and Setup

by

Rachel Carissa Julian-Jones

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This survey presents an historical overview of the foundations of multiple percussion followed by an examination of different notational techniques and setups. Emphasis is placed on the nomenclature known as timbre staff notation and setup. This method of notating for multiple percussion utilizes traditional keyboard notation by assigning each instrument to a note from the chromatic scale. Additionally, the physical layout of the instruments resembles that of a keyboard instrument with each instrument placed at the approximate position of a keyboard pitch. Although there is no relationship between the written pitch and the sounding timbre, there is a direct correlation between the notation and the physical location of instruments. This physical association aids in the efficiency of learning new multiple percussion works if one is familiar with keyboard notation.

This document is meant to provide performers, educators and composers with a background of existing notational methods for multiple percussion and promote the positive elements of timbre staff notation and setup thereby hopefully generating further interest in the genre of multiple percussion.
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CHAPTER 1

THE FOUNDATIONS

...who knew how the need to compose for small ensemble because of war-torn economies in the midst of World War I...would grow into a whole new genre called multiple percussion!

When Igor Stravinsky composed *Histoire du Soldat* in war-torn 1917-18, he introduced a brand new genre to the world of percussion, that is, multiple percussion. Due to the scarcity of both performers and instruments, the composition of chamber works was deemed necessary and Stravinsky chose to compose the percussion part for a single player. Until this point, although some percussionists had already been performing on more than one instrument out of necessity, works composed deliberately for a single player had not been written. Stravinsky had also become acquainted with the influence of the drums in the New Orleans jazz bands, and this led him to compose for instruments similar to those found in a traps setup (bass drum, two snare drums—one large and one small—field drum, high hat, suspended cymbal, triangle and tambourine). Utilizing a variation of the traditional staff and assigning each instrument to its own line, he put into practice the first notation for multiple percussion. Stravinsky even included notation for sticking—stems up for the right hand and stems down for the left hand. The first edition of the work, published in 1924, incorporated the traditional staff with an occasional
single line added for the bass drum or cymbal. Example 1.1 illustrates Stravinsky's original notation in manuscript form.

![Example 1.1. First sketch by Stravinsky, Histoire du Soldat, "The Triumphant March of the Devil"

In 1923, Darius Milhaud composed a ballet accompanied by chamber ensemble that utilized a single percussion player as well as a timpanist. Reminiscent of Stravinsky, the multiple percussion setup in *La Création du Monde* was influenced by the concept of the jazz drumset that Milhaud had heard in Harlem while on a trip to the United States.® The instruments included snare drum, tenor drum, suspended cymbal, woodblock, tambourine, metal block (often an anvil or cowbell), tambourin and bass drum and cymbal played with a foot pedal like the ones used by the early vaudeville drummers.® Milhaud created a separate single line for each instrument so that it resembled a score written for eight people rather than just one person (this would later become known as line score notation or single-line staff system, and will be discussed in Chapter 2). Up to six of these lines were often used at one time (example 1.2).
Several years later, in 1929-30, Milhaud began the exploration of multiple percussion as a solo entity when he composed the first percussion concerto, *Concerto pour batterie et petit orchestre* (*Concerto for Percussion and Chamber Orchestra*), Op. 109. He employed the same instruments as he had in *La Création du Monde* with the addition of triangle, two cymbals, castanets, slapstick, ratchet, tam tam, tambourin provençal and four timpani. These were all to be played by a percussion soloist. This time, Milhaud utilized mainly the line score concept of bracketing instrument groups together, but he also employed the traditional five-line staff for the timpani. Fifteen lines of percussion plus the timpani staff could be used at any given time. Fortunately, since Milhaud bracketed groups of instruments together, the result was five systems of notation rather than fifteen separate lines (example 1.3).
Béla Bartók published his *Sonata for Two Pianos and Percussion* in 1937. This chamber work incorporated two multiple percussionists. The second percussion part was truly multiple percussion, while the first percussion part was written mainly for timpani with a small amount of percussion shared with player two. The instruments for which Bartók composed included xylophone, two snare drums—one with snares and one without snares, suspended cymbal, crash cymbals, bass drum, triangle and tam tam. Bartók utilized single-line score notation for the percussion parts and he clarified which instrument was to be played by using instrument names and abbreviations. The timpani and xylophone parts were written on conventional five-line staves (example 1.4).
As composers continued to utilize the concept of multiple percussion, the soloistic potential of percussion gradually became apparent. In 1958, Karlheinz Stockhausen wrote what is regarded as the first piece for solo multiple percussion. *Nr. 9 ZYKLUS* employed both traditional and graphic notation (this piece and its notation are discussed further in Chapter 2).

Logistical awareness is necessary regarding the physical setup of multiple percussion and its relationship to the written notation. Stravinsky actually sat down and worked out the percussion part for *Histoire du Soldat* himself—complete with sticking and other logistical concerns. He was therefore thorough in his directives both towards the disposition of the instruments and the way that the physical setup related to the written notation. There is a quote that states that when asked by William Kraft why he notated the largest, lowest sounding snare drum, which Stravinsky referred to as the tambour, on the highest line of the staff, Stravinsky simply replied, “...because it is on the right.” He was referring to his decision to place the tambour to the far right of the performer, hence, in visualizing a typical left to right orientation of instruments in correlation to notation, the furthest instrument to the right should obviously be placed on the highest line of the staff.
staff. Although Stravinsky’s original setup followed an unusual left to right order of bass, soprano, alto and tenor (rather than the familiar bass, tenor, alto, soprano) it proved to be the most idiomatic and musical approach for his notational and sticking directions. 

Since then, re-notated versions of Histoire by both William Kraft and James Blades have been published. They provide clearer means of notation albeit with slight variations to the original Stravinsky setup.

Since the creation of this young art form, several notational systems and recommended setup possibilities for multiple percussion have come into existence. Due to its dynamic nature, it would be impossible to standardize any one method. Presently, several types of multiple percussion notation coexist. Selected examples of these are discussed in the next chapter.
Endnotes


2 Multiple percussion refers to the performing, by one player, of a set of various percussion instruments that are usually not considered as one instrument. To many performers, however, these instruments do represent one large instrument that allows for fluid musical interpretation.

3 Ibid.


5 Ibid., v. *This edition states that both Robert Craft and Lawrence Morton, two of Stravinsky’s closest associates, confirm that Stravinsky never used the article, “L” before “Histoire” in the title of this work.*


9 Milhaud specified Tambourin Provençal in the Concerto in order to avoid any future confusion in translating the part to English. He had heard other pieces meant for tambourin being played on tambourine because the meaning had been lost in translation and he did not want that to happen to his piece. Morris Goldenberg, *Modern School For Snare Drum With A Guide Book For The Artist Percussionist* (Chappell & Co., Inc, 1955), 88.


15 For an in depth examination of the Kraft and Blades editions of Histoire du Soldat, see the following article: “Percussion Performance Issues In Stravinsky’s Histoire Du Soldat,” *Percussive Notes* 31, no. 5 (June 1993): 69-75 by David Early.
CHAPTER 2

NOTATIONAL NOMENCLATURE

...never has any group of instrumentalists been subjected to the reading of parts that are as incorrectly, or as incoherently, or as inaccurately, or as illogically written, as have the percussionists.¹

In the beginning, it was natural to notate multiple percussion using conventional notation since it was merely an extension of an already learned concept. However, it was soon recognized that conventional notation would not always provide an acceptable vehicle for composers’ intentions. Therefore, various multiple percussion notational systems were soon introduced, many of which coincided with the general musical exploration and growth of the avant garde. At present, several different techniques are in use.

There are numerous inconsistencies in the designations of these notational systems. In researching this section, it was found that, in some cases, a particular type of notation referred to in one source might not fall under the same heading in another source. In fact, sometimes it had a different name altogether. The obscure nature of name designation presented challenges in clearly classifying notational systems. In the same respect, the obscure nature of notating, in general, leaves many multiple percussionists feeling less confident in approaching new pieces for lack of knowledge in the area of notation. The
second chapter of this document examines and attempts to clarify selected notational systems for multiple percussion.

Conventional Staff Notation

Example 2.1. Psathas, *Matre’s Dance*, measures 31-38

Conventional staff notation, also referred to as five-line traditional notation and five-line staff notation, utilizes the customary five-line staff. Notes are placed on the lines or in the spaces of the regular staff and the composer uses either word abbreviations or pictograms throughout the piece to specify which instrument is to be played and when. Conversely, the composer may present a notational key at the start of the piece that the performer will learn before beginning the work, or as they progress through it.

The advantages to using this system seem obvious. First of all, there is no need to create a new staff or notational idea for this method to succeed. The percussionist should already be associated with reading music from the standard staff. Even though the multiple percussionist is often dealing with non-pitched instruments, once the instruments are assigned a line or space on the staff, there should be little uncertainty in

9
interpretation. Of course, if some of the instruments included are pitched keyboard instruments, the staff notation would innately be the best way to notate them.

As with most systems, there are some disadvantages to be considered. There is often not a standard written abbreviation understood for each instrument. That means the composer might come up with his or her own method of abbreviating, which would be cause for confusion. Along those same lines, if one composes in a particular language—German, for example—then those who do not understand the German language would have even more difficulty in effectively learning to read the notation. The use of universally recognized pictograms would remedy the aforementioned situation, though some pictograms are not universal and might have to be learned anew at the start of each composition. Instead of identifying instruments by means of written abbreviations or pictograms within the music, there may be a notational key that appears at the beginning of the work. Since one may have to continuously refer back to the key to determine what instrument is to be played, this approach does not facilitate sight-reading. However, for many performers, once the specified notation and techniques outlined in the key are memorized, it actually leads to a more fluid approach to learning the piece since there is no longer the need to be concerned with processing pictograms or written abbreviations.

An additional disadvantage encountered with conventional staff notation is that there is only room for up to eleven instruments notated at any given time, unless the composer incorporates ledger lines, which in itself may seem overwhelming on a five-line staff. Therefore, if the composer wants to write for more than eleven instruments, some instruments will end up sharing lines or spaces with the only clarification being the written abbreviation or pictogram. Percussionists who have been faced with this type of
notation know how confusing it is to continuously have to read the written word or pictogram and associate it with a line or space that previously belonged to a different instrument.

Since written abbreviations and/or pictograms are not usually incorporated within the work when utilizing the notational key method, a composer may be forced to find some other way of specifying instruments exceeding the allotted eleven. One way of indicating additional instruments is to use different shaped note heads. Another way may be to utilize upwards and downwards note stems. It seems obvious that the best solution to the problem is to employ the grand staff to avoid the overcrowding and instrument limitations all together. Utilizing slight modifications of the grand staff to notate multiple percussion music is discussed in forthcoming sections.

The early multiple percussion piece, *French Suite* (1962), by William Kraft, utilizes conventional staff notation with a notational key at the beginning of each movement (examples 2.2 and 2.3).

```
\begin{table}[h]
\centering
\begin{tabular}{c}
\hline
1 Snare Drum (high) \\
2 Snare Drum (low) \\
3 Field Drum \\
4 Tenor Drum \\
\hline
\end{tabular}
\end{table}

Example 2.2. Kraft, “Allemande,” from *French Suite*—notational key for the first movement
```

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Another composition that employs this method of notation is *Inspirations Diabolique* (1965) by Rickey Tagawa. Like Kraft, Tagawa provides a diagram of the recommended setup for his work as well as a notational key at the beginning of the piece. Although he uses only six drums, a tambourine and four cymbals in the work (eleven instruments), he takes the clarification effort one step further by incorporating different note head shapes (diamonds and x’s) for the suspended cymbals (example 2.4).

Kraft continued to utilize conventional staff notation and he, too, integrated the use of different shaped note heads in his *English Suite* (1975). More recent multiple percussion

![Example 2.5. Allemeier, Machine, measures 118-125](image)

Conventional staff notation has remained a popular method of writing for decades. Once the performer understands the notational key, abbreviations and/or pictograms, it provides for a very straightforward comprehension of the work—as long as there is not an overabundance of instruments in the piece.
Expanded Staff Notation

Example 2.6. Živković, The Castle of the Mad King, Op. 26
excerpt from page 4, second and third systems
Used by permission of Nebojša Jovan Živković/Edition Musica Europea

Expanded staff, two-stave, multiple stave or multiple system notation uses the same idea as the conventional staff, but employs two or more staves that are bracketed together. This expanded staff enables the composer to write for more instruments than the single conventional staff allows. Each instrument is assigned to its own line or space at the beginning of the piece.

One advantage to this arrangement is that there is no need for any written abbreviations to distinguish instruments like there was in conventional staff notation. However, reading a staff with a large amount of instruments on it is no small task. To memorize the assigned location of each instrument on the staff, and associate it with the physical location of the instrument itself, one would need to spend a great deal of time in preparation.

One of the earliest works to take advantage of the idea of expanded staff notation is Adventures for One (1963) by Robert Stern. Incorporating two bracketed staves, an
occasional single line for suspended cymbal and altered note heads, Stern writes for
vibraphone, timbales, bongos, suspended cymbal and four timpani (example 2.7).

Example 2.7. Stern, *Adventures for One*, Mvmt II, measures 23-28

Expanded staff notation can range from relatively simple and straightforward, as shown above, to complex, as shown below in Charles Wuorinen’s *Janissary Music* (1966). Wuorinen employs a total of twenty-seven instruments on five bracketed staves. The staves are divided as follows: one staff for vibraphone, one for marimba, one for timpano in F, one for twelve different metal instruments and one for twelve different drums. Each staff is labeled throughout the piece as “vibraphone, marimba, drums, metal or timpano.” That concept provides clarification since, at any given moment, a staff that is not in use is omitted from the page (example 2.8). The twelve drums and twelve metals are to be learned and memorized by means of a notational key provided at the beginning of the piece.
Nebojša Jovan Živković utilized the expanded staff in *Generally Spoken it is nothing but rhythm*, Op. 21 (1990/91) and again in *The Castle Of The Mad King*, Op. 26 (1998/99 - example 2.6). Similar to Wuorinen’s piece, *Generally Spoken*... is written for fourteen percussion instruments—seven on each staff—plus vibraphone. Unlike Wuorinen, however, Živković chooses to display all three systems of staves at all times regardless of whether the instruments are being played or not. Also unlike Wuorinen, he beams many of the notes across systems, which vertically clarifies the rhythmic structure of the piece, especially since there are no time signatures and no bar lines (example 2.9).

Example 2.8. Wuorinen, *Janissary Music*, Part I, measures 89-96\textsuperscript{12}
Expanded staff system of notation for multiple percussion has its advantages and disadvantages just like any other method, but it is clearly a good alternative to attempting to notate large amounts of instruments on the conventional five-line staff.

\textbf{Line Score Notation}

Example 2.10. Marta Ptaszyńska, \textit{Space Model} (1992)
excerpt from page 1, second system\textsuperscript{14}

Another method of notating for several instruments or instrument groups is known as line score notation. Edgard Varèse utilized it in the first piece written for percussion
ensemble, *Ionisation* (1934). Sometimes referred to as single-line staff system or an expanded version of one-line traditional notation, this method has proven to be most rewarding in its clarity, albeit it does not always make the most economical use of space or afford visually apparent melodic passages. In other words, contrary to the easily discernible “shape” of a melody written within the conventional staff, when utilizing line score notation, that shape can become more distorted as it may have to stretch across several separate lines to connect with the next note. This might have an adverse effect on musical phrasing when one is learning a piece.

In line score notation, pitched instruments are notated on the traditional five-line staff, while non-pitched instruments are arranged one line per instrument, or two or more lines assembled together to form groups of lines and spaces. In the latter case, oftentimes instruments of like timbres will be grouped about the lines and spaces. The instruments assigned to the lines and spaces are identified either by the written word at the beginning of the piece, or via the use of pictograms. Although the lines are usually bracketed together, each line of instruments or group of instruments is clearly separated from the next, which allows for few complications in effectively reading and understanding this notation.

Line score notation allows the performer to visually separate the notes on the page and categorize them for comprehension, thus providing an efficient approach to learning a multiple percussion work. It may also lend to a more clear association with instrument layout if the instruments are arranged left to right with the furthest left written on the bottom line and gradually ascending to the rightmost being written on the top line. Alternatively, one may choose to place the bottom-line instruments closest to the
performer with each upper-line instrument placed progressively further away. Either of
the aforesaid setups results in a one-to-one relationship between the notation and the
instrumental positioning.  

One disadvantage associated with line score notation is that it usually takes up more
space on the page than most other forms of notation. Since each instrument has its own
line or group of lines, the notation must not only allow for the written notes for each
instrument, but it must also account for the rests for each instrument. Therefore, there
must be written notes and rests on each instrument line to account for all beats, and this
may create visual confusion for the performer. In addition, more space used on a page
means more pages overall. Most percussionists prefer not to contend with an excess of
pages as they are already dealing with logistical concerns such as moving within the
setup and stick/mallet changes. One remedy to this situation is to display only the lines
that are to be played at a particular time. Even then, however, one must keep track of
which line is being presented at any given moment. Ultimately, the best solution for an
actual performance is to memorize the piece.

Another disadvantage of this notation is that even if note heads are beamed together
across staff lines, the disjunctive space between the lines may diminish the performer’s
ability to visually identify rhythmic and/or melodic lines. Keeping in mind that the player
is often dealing with non-pitched percussion instruments, an actual “melodic” line will
initially be more difficult for them to discern than if it were played on a pitched
instrument. Therefore, the lack of a visual melodic line could contribute to difficulties in
the initial realization of musical phrase.
One of the foremost composers to employ extensive instrumentation for multiple percussion utilizing line score notation was Luciano Berio. His five-movement work for female voice, harp and two percussion players, *Circles* (1960), incorporates fifteen groups of instruments into immense setups for each percussionist. Since groups of suspended cymbals, tam tams, triangles, cowbells, toms and gongs are regarded as single instruments, each performer is responsible for close to thirty separate instruments at any given time. The instruments are separated into three categories, all indicated by the use of bracketed systems. Additionally, each part contains a keyboard instrument. The pitched percussion is notated on the traditional five-line staff, but the non-pitched instruments are written in line score notation. Some of the score is graphically notated, which is a notational system that is discussed in the next section. Example 2.11 shows the position of instruments in the score for the first percussion part.

Example 2.11. Berio, *Circles*, score position of instruments for Percussion 1

The instruments utilized at the onset of the work are clearly labeled at the beginning of each movement, and instruments that enter later are distinguished as they occur.
Following the initial labeling of each instrument, however, the labels no longer appear. Therefore, it is necessary that the performer learn to which line or space a particular instrument belongs. In addition, when an instrument is not being utilized, its respective notational line or space does not appear on the written page at all. Example 2.12 displays how the instrument positioning appears within the actual notation of *Circles*.


Probably one of the most recognized pieces written exclusively in line score notation is *Thirteen Drums for percussion solo, Op. 66* (1985) by Maki Ishii. This piece is written for thirteen drums of differing pitches ranging from high to low. The instructions state that twelve of the drums are to be chosen by the performer and should consist of bongos, congas and other skin instruments with calf skin (or Japanese drums: Shime-Daiko, Oke-Dō). The thirteenth drum is a bass drum with a pedal. An excerpt from this piece is presented in example 2.13.
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Since the notes are all beamed together, the rhythmic relationships between them are
clearly apparent, but this is not always the case with line score notation. An example of
non-beamed notes in line score notation is *Rrrrrrr...* by Mauricio Kagel (1981/82).
Written for two percussionists, this piece utilizes line score coupled with pictograms.
Each player is responsible for specific instruments and must keep track of his or her
assigned parts as they appear (example 2.14). The notes are not beamed together, so it is
somewhat more difficult to visually discern the rhythmic and melodic relationships
between the lines. As with most notational methods, however, once the performer
becomes accustomed to instrument placement on the written line, it should be without
considerable difficulty that he or she realizes the intent of the composer.
Line score notation is capable of presenting multiple percussion compositions with great clarity. Even though there are some spatial concerns, as well as the uneconomical use of space on the page, it has established itself as a fundamental system of notation.

Graphic Notation


Beginning with Earle Brown’s collection, *Folio* (1952-53), there was a movement geared towards the concept of musical notation as visual art. Subsequently, some composers turned to composing visually stimulating pictorial and graphic representations.
of their ideas. *Mutatis Mutandis* (1968), by Herbert Brün, displays what he termed "graphic analog" notation (example 2.16). He stated:

The graphic displays turn into scores as soon as the interpreter translates their structural characteristics into the instructional code of another medium (music, movement, etc.) and following his translation recreates the simulated process by analogy.\(^{24}\)

Brün challenges the interpreter to construct a working model of his graphic structure and to perform it in any medium: sound, movement, language, film, etc. He also stipulates that:

The Interpreter is not asked to improvise.
The Interpreter is asked not to improvise.
He is asked to compose.\(^{26}\)

This approach is central to the realization of graphically notated pieces in that they are extremely subjective in their interpretations and must be studied and prepared diligently in order to achieve the quality of musical expression desired.
Unique to the composition in which it occurs, graphic notation typically consists of abstract shapes, symbols, lines, pictures, dots, arrows, pictograms, time-grids and many other imprecise and/or unconventional compositional devices. The first commonly recognized solo piece written for multiple percussion, Karlheinz Stockhausen’s \textit{Nr. 9 ZYKLUS} (1958/©1960), utilizes both graphic notation and traditional staff notation (example 2.17). In reviewing the work, one critic stated, “the initial impression is that one is looking not at a score but at a drawing by Paul Klee.” One can see how the abstract nature of the score does bear resemblance to drawings by the Expressionist artist (example 2.18).
Example 2.17. Stockhausen, *Nr. 9 ZYKLUS*<sup>99</sup>
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Example 2.18. *Tightrope Walker* by Paul Klee<sup>30</sup>
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**Nr. 9 ZYKLUS** is scored for the following instruments:

- Marimbaphone.
- Guiro, fixed to a stand, deep sound (if possible use several guiros).
- 2 wood drums (African tree drums—each gives two pitches).
- A suspended bunch of bells (if possible Indian ones of various sizes) and/or tambourine fixed to a stand, struck with a stick or with the hand.
- Side drum, very high in pitch, with snares; if the snares rattle too much when other instruments are struck, they may be disengaged.
- 4 Tom-toms.
- 2 cymbals. The striking point (nearer the edge or nearer the center) should be varied continually.
- Hi-Hat: (note in between lines) = closed, struck with a stick (or close it with the pedal). (Notes on top or below lines) = open, struck with a stick. (Notes on top or below lines with slashes through them) = open, struck at the center.
- Triangle: continual change-over between at least two very high-pitched triangles. Single strokes with the heavier sticks, tremoli with very thin metal sticks.
- Vibraphone (without vibrato).
- 4 cowbells, suspended without beaters; "frog mouthed" and flat bells.
- Gong with a raised center. Where possible struck with a soft stick, if nothing specific is indicated. Vary the striking point continually.
- Tam tam, where possible struck with a hard stick, if nothing specific is indicated. Vary striking point continually.

Even in browsing the above list, one notices both specificity and ambiguity in instrument designation. Likewise, the instructions relating to sound production are both explicit and approximate. Similarly, graphic notation is simultaneously determinate and indeterminate. Therefore, by its very nature, graphic musical notation is intended to liberate the performer's reaction, thereby stimulating the imagination and resultant expression. Time values, tempo, dynamics, instruments, and so forth, are indicated through the use of symbols. The author/composer of a piece written in graphic notation
deliberately avoids conveying specific notational indications in the traditional sense, although, the majority of the time, several pages of written guidelines preface the score. Ultimately, they are meant to result in the creative interpretation of the performer. The end result of the freedom presented in a graphically notated score is that there will be a different interpretation each time it is actuated by a new performer. One must be careful to note, however, that most, if not all, graphic scores are not meant to be exercises in improvisation. In fact, as stated in the instructions of *Acoustic Study No. 1 (for a Qualitative Percussionist)* (1973) by Dr. Michael Udow:

> It should be clearly understood that the interpretative approach to these graphics be of an inventive, creative, and intellectual nature. Improvisation is not requested.\(^{32}\)

An illustration of Udow's graphic notation is shown in example 2.19.\(^{33}\)

Example 2.19. Udow, *Acoustic Study No. 1*\(^{34}\)

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One of the most significant pieces in solo percussion literature is *The King of Denmark* (1965) by Morton Feldman. This entirely graphic piece also leaves a great deal
of creative decisions up to the performer. Presented on a grid system, the different sections, or boxes, contain the information the performer needs to interpret the piece. Each box is supposed to equal a metronome marking of between sixty-six and ninety-two. Several of the boxes contain numbers to represent how many sounds should be played within the box. Other boxes are left empty. Broken lines extending beyond a box indicate sustained sounds while Roman numerals in the boxes represent simultaneous sounds. Large numbers indicate that single sounds should be played in all registers in any sequence. There are still other symbols that are not defined in the performance instructions at all and are thus left up to the percussionist to interpret. The performer is instructed that, rather than using sticks and mallets, all instruments are to be played with his or her fingers, hands or any part of the arm. Instruments required for the piece range from a triangle, vibraphone (without motor), cymbal and gong, to skin instruments and "bell-like" sounds (example 2.20).³⁵

Example 2.20. Feldman, The King of Denmark³⁶

Feldman disapproved of the idea of musical progress being related to systems and rationalizations. He believed instead in “…how it sounds…” and he urged the performer
to "...let the music write itself." His method of notation provides an inspiration for musical expression that can only be realized on an individual level.

As previously stated, graphic notation is unique to the composition in which it occurs. Some characteristics are common to other scores, but overall, this notation is highly subjective in both composition and interpretation. It will likely not be subjected to standardization as the whole concept of graphic scoring is to interpret in one's own mind.

Spatial Notation

*The Multiple Percussion Book*, excerpt from page 74, third system

Spatial, or proportional, notation is often combined with graphic characteristics. It consists of various dots, shapes or note heads placed in or around measures, lines, spaces, pre-determined grid systems that have time labels rather than actual meters, and even on the infinite background of a blank page. The "notes" are frequently different sizes intended to coincide with the dynamic range—the larger the dot, the louder the sound and vice versa. Sometimes dynamics are realized simply through note placement on the "staff." The duration of the sound is also often manipulated through the size or shape of the note—it may be elongated or shortened to alter the sound accordingly. Much of the
time, both dynamic and durational values are relative to the note occurring before and after a given note within the time label.

A good example of spatial notation is found in John Cage's piece, *27'.10.554'' For A Percussionist* (1956/©1960 - Example 2.22). In the instructions for this piece, Cage states:

> a correspondence between time and space is made so that each page = one minute; the numbers above the systems are the seconds of the minute.  

Example 2.22. Cage, *27'.10.554"* page 19, first system

The instruments are to be divided into four groups: metal (M), wood (W), skin (S) and all others (A). Cage emphasizes that the virtuoso performance will be one that is rendered through an “exhaustive rather than conventional use of the instruments explored.” He places dots on and around lines that are assigned to each instrument group. Any dots placed above a line are to be played louder than the ones below the line, and those dots on the line itself should be played at a mezzo-forte dynamic level. Sometimes the dots are lengthened into lines to represent a crescendo. Occasionally, the dots are joined to a line with a stem. In those cases, the stems are added merely to clarify to which line, and thus, to which instrument group the dot belongs. When a small hook appears attached to the dots in the metal group, the player is instructed to let them ring.

31

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Much like graphic notation, spatial notation, although usually quite detailed in its instructions, leaves a lot of room for interpretation. There is a great deal of liberty to be taken within a highly ordered structure of determinate indeterminacy. As with any other notation, the characters on the page should serve merely as a catalyst between the composer’s intentions and the performer’s artistic interpretation.

Hybrid Notations

Example 2.23. Van der Slice, *Pulse/Impulse*
excerpt from page 3, second system

Example 2.24. Stockhausen, *Nr. 9 ZYKLUS*
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Much of the time, composers do not utilize one single form of notation when writing for multiple percussion. In fact, it is not uncommon to encounter two, three or possibly even more notational systems in one piece. Hybrids can range from the simple use of pictograms coupled with line score notation, such as that employed in *Pulse/Impulse* (1984) by John Van der Slice (example 2.23); to a graphic score that utilizes pictograms, spatial, line score and conventional staff notation somewhere in its depths (refer to Stockhausen’s *Nr. 9 ZYKLUS*—example 2.24). A working knowledge of all types of notation is necessary to provide a solid foundation for the performing percussionist.

**Timbre Staff Notation**

![Example 2.25. Hollinden, *Slender Beams of Solid Rhythm* (1991) page 4, first and second systems](image)

Timbre staff notation and setup refers to a more recent development in notational language for multiple percussion. Dr. Michael Udow had utilized the idea in his *Timbrack Quartet* (1978), but he formally introduced the concept in the early 1980s. He included pieces employing the method in his collaboration with Chris Watts, *The Contemporary Percussionist: 20 Multiple Percussion Recital Solos* (1986). As a result
of working closely with Udow, composer, Dave Hollinden, has used timbre staff notation in several of his multiple percussion compositions.

A treble clef with an "X" or slashes (/\) through it signifies this notation. The setup and notational key are illustrated with pictograms in the instructions for the piece. Utilizing the traditional staff, each instrument of a multiple percussion setup is assigned to a note from the chromatic scale. To coincide, the instruments are arranged to resemble the physical position of the keys on a keyboard instrument. So rather than there being correspondence between the notated and sounding pitch, the association lies in the relationship between the physical location of the instrument and the notated pitch. This direct correlation between the physical setup and the employment of standard keyboard notation means that the learning process of a new piece should prove to be quite efficient for someone who is familiar with the layout and notation of keyboard instruments. Not only will the comprehension of the notation occur quickly, but the keyboard oriented disposition of the instruments will afford familiarity to the muscle memory of the performer, which should also result in more efficient learning. Less time spent learning a new notational key means more time concentrating on the creation of the music itself.

By beginning on middle C and incorporating accidentals, timbre staff notation can accommodate up to twenty-one instruments on the traditional five-line staff (from C4 to G#5). Utilizing the grand staff and/or ledger lines, that amount is greatly increased, although, as with other aforementioned methods of notation, an overloaded staff might be less appealing to the potential performer in terms of visual clarity, and thus, a lessened learning efficiency. Hollinden himself finds that

...it works well to include twenty or so instruments on a single timbre staff when there is sufficient variety in the
instruments...but, if the instruments instead come from a relatively small number of instrument families (for example, 6 toms, 5 temple blocks, 5 cowbells, and 4 crotales), it can be difficult to arrange the instruments on the staff in a way that makes intuitive sense. And if the written music is based more on instrument family rather than on using all of the instruments on the timbre staff together as one large, composite instrument, then the composer is better off using another notational system such as separate staffs or calling out different instrument groups on a single staff.\textsuperscript{50}

Example 2.26 identifies the pictograms of the instruments that Hollinden incorporates in \textit{Cold Pressed} (1990/1994). Listing the instruments in this fashion avoids any misconceptions pertaining to the exact meaning of the pictograms.

\begin{center}
\begin{tabular}{lll}
\textit{Instruments:} & \textit{Pictograms:} \\
Snare drum & \includegraphics[width=1cm]{snare_drum.png} & \includegraphics[width=1cm]{crotales.png} \smallskip
Large tom-tom & \includegraphics[width=1cm]{large_tom.png} & \includegraphics[width=1cm]{toms.png} \smallskip
Medium tom-tom & \includegraphics[width=1cm]{medium_tom.png} & \includegraphics[width=1cm]{temple_bells.png} \smallskip
Bass drum with pedal & \includegraphics[width=1cm]{bass_drum.png} & \includegraphics[width=1cm]{cymbals.png} \smallskip
\end{tabular}
\end{center}

Example 2.26. Hollinden, \textit{Cold Pressed}, pictograms defined\textsuperscript{51}

Example 2.27 shows the timbre staff notational key Hollinden utilizes in the piece and Example 2.28 gives an illustration of the corresponding “keyboard” setup. Hollinden chooses to notate the pedal bass drum and cymbals separately as they are located outside of the fundamental setup—the pedal bass drum is on the floor and the cymbals are suspended. The intrinsic qualities of these instruments make them difficult to mount within the keyboard setup and are therefore not included in the chromatic notation.
Example 2.27. Hollinden, *Cold Pressed*, notational key\textsuperscript{52}

Example 2.28. Hollinden, *Cold Pressed*, keyboard setup\textsuperscript{53}

On the written page, the piece very much resembles that of a mallet keyboard instrument (example 2.29).

Example 2.29. Hollinden, *Cold Pressed*, notation in context page 5, measures 104-111\textsuperscript{54}

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Hollinden even incorporates phrase markings and enharmonics throughout the piece. Phrase markings are often not present in multiple percussion music, which makes it difficult for the performer to decipher what phrasing the composer intended. The non-pitched material is clearly recognizable as a visible melodic line, and the use of phrase markings supports the melodic shape and provides the player with a stronger sense of musical unity.

Timbre staff notation can be conceived of as a truly universal approach to notating for multiple percussion. It employs commonly recognized pictograms to symbolize instruments and it utilizes the traditional five-line keyboard staff (or possibly the grand staff), which is readily accepted as an established form of notation. It offers the utmost in reading clarity between the actual setup and the notation.

Naturally, timbre staff notation and setup is not appropriate for all multiple percussion music. Not all setups will physically lend themselves to the keyboard configuration. Hollinden states:

There are certainly limitations. Some instruments, due to their size and/or mounting mechanisms, are difficult to fit into a timbre staff arrangement. For example, it's difficult to include suspended instruments such as gongs and cymbals in a set up that otherwise consists of instruments that are mounted on stands or lying on tables. It is for this reason that I typically do not notate cymbals as part of the timbre staff, and instead use “x” shaped note heads on the top staff line and above.
Also, the number of instruments involved in the setup can make timbre staff notation less useful. Certainly if a player only has four or five instruments to play, it's not worth the effort of using timbre staff since it requires explanation.
Additionally, in cases that involve indeterminate methods of the notation, such as graphic or spatial, one might find it difficult to recreate the intimate concepts in timbre staff notation.

Conclusion

There are advantages and disadvantages associated with each type of notation. Frequently, a new notation is developed in an attempt to remedy the disadvantages of an existing system while other methods are developed purely for the purpose of igniting the imagination of the interpreter and resulting in a different interpretation of the piece at each performance. Oftentimes several types of notation are included within in a single piece.

Compositions for multiple percussion are much too diverse to permit standardization in notation and it is ultimately the multiple percussionist’s responsibility to have a working knowledge of all notational nomenclature. Rigid rules of standardized notation would lead to a lack of individuality among composers and, thus, a lack of interest in writing for the medium. Timbre staff notation and setup offers a traditional notational approach that might appeal to the otherwise hesitant composer and may offer an excellent opportunity not only for the seasoned composer, but for the aspiring one as well. The next chapter of this document discusses the evolution of multiple percussion setups with an emphasis on timbre staff notation and setup.
Endnotes

4 Pictograms are drawn symbols that represent various instruments. The employment of pictograms may facilitate sight-reading since the interpreter need not read written information such as written abbreviations within the music. For extensive listings of pictographic representations of percussion instruments, implements and playing techniques, refer to *Tabulatur 2000: The Up-To-Date Dictionary Of Percussion Notation* by Siegfried Fink (Hamburg-London: N. Simrock, 2000) and Chapter One of *Pictographic Score Notation: A Compendium* by Gardner Read (Westport, CN: Greenwood Press, 1998).
6 Ibid., 2.
19 Ibid., 29.
21 Ibid.
22 Mauricio Kagel, *Rrrrrr...* (Henry Litolff’s Verlag, 1985), 11.


26 Ibid., 14.

27 Paul Klee (1879-1940) was a Swiss Expressionist painter. According to the compiler of this article, Ingvar Loco Nordin, this quote was made by a critic regarding his first impression of *Zyklus*. Ingvar Loco Nordin, “Stockhausen Edition no. 6,” <http://home.swipnet.se/sonoloco2/Rec/Stockhausen/06.html/>.

28 Centered in Germany, C.1905—1940s, Expressionism is a style of art in which the intention is not to reproduce a subject accurately, but instead to portray it in such a way as to express the inner state of the artist.


31 Stockhausen, *Nr.9 Zyklus*.


33 Ibid., 2.

34 Ibid., C.


36 Ibid., 1.


41 Ibid., 19.

42 Ibid.


44 Stockhausen, *Nr. 9 Zyklus*.


46 Early references to this notation also referred to it as adapted keyboard notation.


49 It should be noted that a timbre staff setup can start at whatever point in the chromatic scale is most favorable to the composition.
Dave Hollinden, electronic mail interview by author, 21 July 2005.
Ibid.
Ibid.
Ibid., 5.
Hollinden, electronic mail interview.
CHAPTER 3

TIMBRE STAFF NOTATION AND SETUP

Percussion student Wally Hacker was rushed to University hospital yesterday suffering from a severely pulled groin muscle. A friend who witnessed the accident said Wally sustained the injury when his foot became entangled between the vibraphone pedal and the “alto” brake drum as he attempted a 180° pivot during a rehearsal session of XL Plus One for Multiple Percussion by Alvin Etler.¹

Although the preceding quote from an article in the Fall 1977 issue of Percussive Notes is humorous, it does address a significant factor regarding multiple percussion—the setup. The physical arrangements of instruments for solo multiple percussion works are constantly altered. This is due to the availability of an enormous amount of percussion instruments, and thus an enormous variety of possible setups.

A workable arrangement of the percussion instruments, one that provides for efficiency and freedom of movement, is an essential element in any successful multiple percussion performance.²

With this aspect in mind, as the art form developed, a few people took it upon themselves to offer remedies to the logistical situation. Efforts were made to create instrumental systems that were of a fixed, yet adjustable, nature so as to provide a common logistical approach to each multiple percussion setup. Below are some designs that were studied (and, in many cases, that are presently in use) before the conception of timbre staff notation and setup. It is important to note that, aside from the Timbrack,
these ideas were devised separately and were not directly associated with the eventual concept of timbre staff notation and setup. The relevance of mentioning them in this document is that, from the beginning, there has been a significant amount of concern regarding the setup of multiple percussion. The fact that these people were (and are) willing to go to such lengths to create "mega-instruments" meant to assist in the realization of multiple percussion works supports the significance of the genre.

The Prepared Piano

Even before solo multiple percussion existed as a solo entity, John Cage was experimenting with his art of noise. In the late 1930s, while working as a dance accompanist at the Cornish School of the Arts in Seattle, Washington, he invented the "prepared piano"—a sort of extension of percussion instruments.\(^3\) The prepared piano is a piano with objects such as screws, bolts, pieces of rubber, etc. placed between its strings so that when the keys are depressed, the normal quality of sound is altered in such a way as to create a whole new timbre. In effect, Cage possessed an entire percussion orchestra at his fingertips. Music could be notated as though it were written for piano, yet entirely new and unexpected sounds would emerge when the keys were depressed. He composed his first work for prepared piano, *Bacchanale*, in 1940.\(^4\) This piece is "musically similar to the simple percussion works of the time, but requires only a single performer."\(^5\) Timbre staff notation could be envisaged as an outgrowth of this concept in that it, too, resembles keyboard notation, yet there is no direct association between the written pitches and the actual timbres.\(^6\)
The Percussion Console

In 1969, composer, percussionist, and inventor of original percussion instruments, Ron George, began doing extensive research into the areas of new percussion resources for the percussionist and composer. This research culminated in the production of a new system of multiple percussion construction, the Multiple Percussion Console. Along with this construction, George also developed a unique tablature notation for percussion as well as new performance techniques for traditional and newly developed percussion instruments. Consisting of special racks constructed from aluminum pipe with structural fittings and laboratory clamps, the Percussion Console can hold a myriad of percussion instruments in a compact arrangement. Percussion instruments are organized into groups forming patterns in which each instrument is assigned a note. These multiple percussion “keyboards” are then placed around the performer making use of all space above, below, in front of and even behind him or her (example 3.1).

Example 3.1. The Loops Console, diagram
Used by permission of Ron George
One can arrange the percussion instruments into five different physical areas (The Loops Console, examples 3.1/3.2, utilizes three of the five areas). Any instrument or group of instruments (keyboards) may be placed in any of the areas, however, due to individual instrument characteristics, certain areas seem to provide more suitable positioning for certain instruments. For example, area number one consists of a pedal keyboard that allows the performer to control large instruments such as gongs and tam tams by foot. If area one is utilized, the performer sits so he/she can use both feet. Area number two is composed of the flat, normal playing height and might feature such instruments as concert bass drums, toms, snare drums or keyboard instruments like vibraphones or xylophones. Area three is the first elevated area, somewhat behind and above the second. It generally contains an organized pattern, or “keyboard,” made up of instruments such as temple blocks, wood blocks, pipes and claves, for instance, or it could hold another mallet keyboard instrument. Area four, the second elevated area, is approximately the height of the player’s head, and generally is comprised of suspended
cymbals, wind chimes and other suspended instruments. The fifth area encompasses the space above the head and is generally made up of hanging gongs, chimes and other suspended instruments.\textsuperscript{11} The Percussion Console is modular and may be constructed in a manner necessitated by a percussionist and/or composer.

Ron George developed The Loops Console in collaboration with composer Robert Erickson at the Center for Music Experiment and Related Research at the University of California, San Diego in 1973.\textsuperscript{12} Erickson's composition, \textit{Percussion Loops}, is based on the "transformational and contrapuntal aspects of timbral (color) changes within a single melodic line." The Loops Console and \textit{Percussion Loops} cannot be separated; they grew as one organic entity.\textsuperscript{13} The console consists of the following:

Three modular keyboards: two upper keyboards containing 35 percussion instruments and one lower, a foot operated pedal board, controlling two large gongs and one tam tam. These variable keyboards allow the sound and color of the instrument to be extensively altered both within a musical work as well as from one composition to another. These alterations allow the performer to create a wonderful world of melodic and harmonic sound textures of similar and contrasting color.\textsuperscript{14}

Since 1973, the Loops Console—and the concept of the Percussion Console in general—has been greatly expanded. Many compositions by George, as well as other composers, have been written utilizing the concepts. A percussion console can be constructed as needed and can open up a vast new world of percussion composition and performance. George has designed many different console systems over the years, and has devised a method of tablature notation that is created solely for his "one-of-a-kind" percussion setups.\textsuperscript{15} He is currently performing on his most recent development, a modular microtonal tubular keyboard console, the Tambellan (example 3.3).
When composed for separately, the Tambellan utilizes an extension of standard keyboard notation, but when combined with other percussion instruments, tablature notation is sometimes used (example 3.4).\textsuperscript{17}

Example 3.4. The tablature notation utilized by Erickson in \textit{Percussion Loops}.\textsuperscript{18}

The tablature notational system is a general system that can be used by anyone. When utilized for percussion writing, it makes extensive use of symbols, both individual and
combined, of varying sizes and shapes. These symbols are placed within the notational staff and are used to replace the traditional note head and sometimes the stems. Both the staff and the symbols are of equal importance in identifying:

1) Individual or groups of percussion instruments in a score
2) The striking point on these instruments
3) The implement (mallet, bow, finger, stick, etc.) used to produce the desired sound
4) Many of the activities that the performer must execute to perform the music

George says of tablature notation:

Placing symbols within a staff system results in an extremely compact notational system in which combinations of mallet percussion instruments and/or large groups of individual percussion instruments can easily be notated in one or two staff systems. Tablature notation, once the fundamentals of the system have been learned, is easier to work with for both the composer and performer than the more commonly used notational systems.

He also states:

[It] does take some getting used to as percussionists are not familiar with such notation. One can take a very complex multiple percussion score and, with tablature notation, put it on a couple of staves thus enormously simplifying the learning and performance process.

Wodiczko Frame

Also in the 1970s and early 80s, Polish artist, Krzysztof Wodiczko became interested in the logistics of multiple percussion. He accepted a commission from Joseph Patkowski, manager of the Polish Radio Experimental Studio, to design a structure that was to serve as an “all-purpose percussion stand.” In collaboration with American percussionist, Michael Ranta, Wodiczko constructed an architectural frame made of rods
that was 396 x 396 x 288 centimeters surrounded by five side walls. The rods formed a series of forty-five centimeter modular squares that served as the framework to hold the required instruments. Within the structure, the rods could be removed and situated as needed to fit the instruments as well as provide a corridor-style working space within it for the performer. In addition,

grips of different sizes are provided to suspend or fix instruments; ‘specially designed flat grids can be fixed to the rods’ in order to provide the player with tighter fixing or suspending units; ‘working planes’ can also be ‘fixed to the rods’ thus providing tables. The frame is equipped with a lighting unit and can accommodate the presence of electrical instruments and amplification by microphones (example 3.5).\textsuperscript{23}
Wodiczko’s design offered a means to fix, yet have the ability to modify, the endless variations of multiple percussion setups. Of particular significance to him was the ability to provide the musician with the freedom to create “infinite sound combinations” without the added hindrances of “wooden hangars, racks, tables with vices, etc. (that) will only add to (the) general chaos in which both the musician and the source of sounds are lost.”

Both George and Wodiczko’s proposals of combining instruments in a single frame or rack provide the performer with solutions for setup concerns. However, as with the notational differences discussed in Chapter 2, there are potential drawbacks associated with such methods. Besides the fact that one must build the console, rack or frame system, François discusses the fact that

1) drastic setup modifications cannot be easily achieved in a very short time span thus rendering even more difficult the already cumbersome changes between contrasting pieces.
2) frame structures often require different frame combinations for different pieces and sometimes unreasonable multiplication of instruments.

It seems that, as with multiple percussion notation, the best solution is the collaboration between a composer and a player to figure out a workable setup. Unfortunately that is also an unrealistic solution for each and every piece composed. Therefore, it is in composer’s best interest to educate themselves in the seemingly infinite possibilities multiple percussion setups, and notational methods, have to offer.

Timbre-Rack / The Timbrack / Timbre Staff

In 1981, Dr. Michael Udow wrote an article in Percussionist entitled, “Visual Correspondence Between Notation Systems and Instrument Configurations.” In the
article, Udow acknowledged that no single method of notation for multiple percussion would service all of his compositional needs. Accordingly, he offered a feasible proposal that could certainly result in a well-organized approach to the notation and physical distribution of instruments in a multiple percussion setup, thus significantly aiding the communication process between the composer and performer. He based this idea on the performer having a direct, visually familiar correspondence between the physical configuration of instruments and the notation. Building on the customary keyboard instrument setup, the performer was to create a keyboard arrangement of timbres. If timbres were arranged according to this already familiar layout, then a form of regular keyboard notation could be utilized to achieve what the composer intended.

Udow cited some existing works that utilized versions of such a technique. In 1974, Herbert Brün composed a chamber work entitled *In and... and Out* in which, during four sections of the piece, the percussionist is asked to choose a combination of idiophones and/or membranophones and place them into a keyboard configuration, or a “timbre-rack.” The visual correspondence between the timbre-rack and the timbre staff notation not only removes many of the logistical concerns associated with playing the unique timbral combinations related to multiple percussion, but also aids in more efficient learning of the piece. Udow also mentioned *2 Acts for 3 Players* for clarinet, piano and percussion by Ross Lee Finney (1975). Utilizing the regular staff (bass clef), Finney notates specific pitches of thirteen roto toms, but he does not recommend any associated setup. Since the notation is written on the keyboard staff, however, the roto toms can easily be placed into a keyboard setup. Udow even pointed out that in the earliest days of writing for timpani, J.S. Bach notated the two drums as the pitches “G” and “C”
Regardless of the key. The actual pitches were printed at the beginning of the piece, but once they were established, one only had to pay attention to whether they were to play the high drum or the low drum as literally represented by the notation. This concept could be viewed as the most basic foundation of timbre staff notation and setup since the instruments were assigned to pitches yet they had no association with the actual sounds produced.

Recognizing the potential of timbre staff notation and the timbre-rack system, Udow developed an entirely new instrument—the Timbrack. It was initially constructed for a performance of Herbert Brün’s graphically notated piece Stalks and Trees and Drops and Clouds (1975). Rather than creating a rack system in which to place standard percussion instruments (like the George Percussion Console and the Wodiczko Frame), Udow based his instrument on the foundation of a mallet keyboard setup. He had a variety of wood and metal objects made into sound bars, tubes, rods and bells and placed them into a four octave keyboard oriented multiple percussion console. This instrument could be played with an assortment of keyboard mallets and mallet techniques. Due to the keyboard arrangement of the bars, the performer of the Timbrack could realize more controlled sticking, articulation, tone, balance and dynamics. Thus, musical phrasing and melodic lines would prove to be much more attainable than in previous setups.

As one may conclude, the problem with the Timbrack is that it is not mass-produced, and as such, it was never meant to be made commercially available. Udow has stated that this is an instrument that he created, with the help of Peter Spenlove at the Premier Drum Company, Ltd. England, expressly for his own personal use. Therefore, if one desires to perform on such an instrument, he or she must build one.
An important aspect that Udow addressed in his article was the need for composers to start thinking more about the physical setup of their pieces in correspondence with notation, and thereby create more accurate representations of what they wanted. A good pre-determined setup of a multiple percussion piece can save the performer a great deal of practice time and will contribute exponentially to the smooth kinesthetic flow necessary for a successful performance of the work. Although timbre staff notation is already relatively easy to read due to its correlation with keyboard notation, it is further simplified by relating the physical setup to the notation. Additionally, the keyboard-shaped design lends to the mental-aural concept of the multiple percussion setup as one large composite instrument. As a result of introducing the idea of adapted keyboard notation using the timbre staff, Udow provided a solution to the many composers who are perplexed when it comes to writing for multiple percussion. Now, one need only understand standard keyboard notation to open the lines of notational communication between themselves and the performer of their work.

While at the University of Michigan, composer, Dave Hollinden wrote his first percussion piece, the percussion quartet, *The Whole Toy Laid Down* (1988). Hollinden had a meeting with Udow to discuss the piece and Udow explained the timbre staff notational concept to him. After further discussion, Udow and Hollinden decided that the music for player three (the multiple percussion part) in the *Whole Toy* could be notated using timbre staff notation. Although Hollinden had already composed the music, he re-notated it utilizing Udow's timbre staff method. That decisive moment led to Hollinden's further exploration of the timbre staff. He has since employed timbre staff notation and setup in subsequent multiple percussion pieces including *Cold Pressed* (1990), *Slender*

The first piece Hollinden composed with timbre staff notation and setup in mind was Cold Pressed. He "laid various pots and bowls on the floor as a way to experiment with the instrument set up." Eventually, he decided on the following instrumentation: snare drum, large tom-tom, medium tom-tom, bass drum with pedal, bongos, tambourine with head, three cowbells, two woodblocks, two temple blocks, two crotales, splash cymbal, crash cymbal and ride cymbal. Once the instrument timbres were assigned to their various positions in the timbre staff setup, Hollinden felt he was able to modify certain elements such as tuning, muffling and specific instrument selection. The final recommended setup for Cold Pressed is illustrated in example 3.6.

Example 3.6. Hollinden, Cold Pressed, keyboard setup
Taking the time to choose and fine-tune the instruments contributes significantly to the final outcome of a piece. If one merely throws together the individual instruments without making an effort to find specified intervals or muffle the drums accordingly, then one is not creating the sounds the composer intended, and therefore may not truly fulfill the desired melodic aspects of the piece. In fact, experimenting with a wealth of timbres will also be a considerable factor in the overall outcome of the piece in that the performer and the composer will feel more personally connected to their selected instruments and therefore will have the opportunity to be more focused on the musical expressions they are creating. The unification of notation and setup that timbre staff notation provides allows both the composer and the performer to concentrate on the creation of the music.

Following are examples of the same passage (measures 103-111 of Hollinden’s *Cold Pressed*) re-written utilizing notations discussed in Chapter 2 of this document. Example 3.7 shows the excerpt as published utilizing the concept of timbre staff notation and setup.⁴¹

Example 3.7. Hollinden, *Cold Pressed* measures 103-111—timbre staff notation⁴²

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Example 3.8 demonstrates what that same excerpt might look like if written in expanded staff notation without beamed cross-staff notes.

Example 3.8. Hollinden, *Cold Pressed*, measures 103-111 expanded staff without cross-staff beaming
Example 3.9 shows how it would look with beamed cross-staff notes.

Example 3.9. Hollinden, *Cold Pressed*, measures 103-111
expanded staff with cross-staff beaming
Example 3.10 illustrates a possible realization of the excerpt in line score notation. Notice the extensive use of space and the large amount of distance between many of the rhythms from line to line. Only the beaming across the lines maintains rhythmic relationships.

Example 3.10. Hollinden, *Cold Pressed*
measures 103-111, line score notation with cross-staff beaming

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If the notes were not beamed, the excerpt might look like the following illustration (example 3.11).

Example 3.11. Hollinden, *Cold Pressed*
measures 103-111, line score notation without cross-staff beaming

After only a brief examination of the aforementioned notational examples, it is clear that timbre staff notation presents the most economical approach to notating for a large
array of separate instruments. More importantly, it visibly illustrates a musical line. One may even play a passage on a mallet keyboard instrument in order to get an idea of what the timbral "melody" might feel like. Not only is this form of percussion notation capable of visually relating musical line and phrase on the page, but, due to the spatial relationship with the keyboard instrument, it also allows the player to be kinesthetically aware of the setup from the commencement of learning the piece. In addition, it might prove to be an appealing form of notation for the non-percussionist composer. He or she need not fear writing for percussion instruments if already familiar with keyboard notation. Furthermore, if the instruments are initially arranged in a keyboard fashion, the composer may be more likely to write both idiomatically and more creatively for the composite setup. In fact, according to Hollinden:

The very idea of composing for a timbre staff setup places the composer in the position of needing to decide on the instrumentation and its physical setup before beginning to compose. So the act of defining the setup can become a creative act in and of itself. Once the setup is established, the mind is free to write without being concerned with matters of instrumentation and setup. And a fixed setup such as this, where the instruments are physically close together and notated chromatically on the staff, brings new possibilities to mind for multi-percussion composition, such as scalar passages, arpeggios, etc., that could otherwise not be considered when the instrument placement is not defined.

He further states,

I think that the timbre staff stands a good chance of becoming a commonly used notational system for multi-percussion works with relatively large setups. Given that these works represent a subset of all percussion music, there will, by necessity, continue to be other competing notational systems. At present, though, the use of timbre staff notation is mostly discussed among percussionists.
rather than among composers, and until composers join the
discussion the use of timbre staff will remain limited.44

Conclusion

One may deduce that, for many—especially beginning—multiple percussionists, if a
piece does not possess a straightforward method of notation, they do not want to pursue
it. Or, worse yet, they pursue it and end up performing a version that only somewhat
sounds like what was really intended by the composer. This may be because the
performer gets bored or confused by the new notational language. In addition, he or she is
forced to deal with the logistical issues that often accompany a multiple percussion work.
Of course there are the challenge seekers who thrill at the thought of spending time
learning a new system of notation before ever actually touching an instrument. But
overall, if one must learn a new system every time he or she plays a piece, he or she
might be somewhat discouraged about the idea of performing multiple percussion in
general. It seems that timbre staff notation and setup could provide a good means of
common notation that could benefit performers, inform educators and attract composers,
which, in turn, could hopefully result in further serious compositional interest in the field
of multiple percussion. It is important to note that these views are not meant to place fault
on other notational and setup methods. There are certainly times when a particular
method of notation or setup is better suited to a particular piece. This document is merely
making observations regarding several approaches towards writing and playing multiple
percussion compositions, while promoting the appealing aspects of timbre staff notation
and setup.
Endnotes


4 Ibid.

5 Ibid.

6 Although many people do not consider the piano a percussion instrument, it is important to include the “prepared piano” in this portion of this document, as it possesses multimbral qualities that relate to the idea of multiple percussion. In addition, its keyboard setup and notation present similarities to the concept of timbre staff notation and setup for multiple percussion.

7 See the following article for a comprehensive explanation of George’s percussion console: Ronald George, “Research Into New Areas of Multiple-Percussion Performance and Composition,” Percussionist 12, no. 3 (Spring 1975): 110-131. The use of the word “console” derives from that as used for an organ console with its many layers of keyboards (Ron George).


9 Ibid., 128.


11 It is important to note that any instruments may be placed in any of the areas. The description in the text merely provides general instrument placement possibilities.

12 The Center was under the direction of Jean-Charles François at that time. He has since published a book (in French) that discusses percussion aesthetics and notation concepts.

13 Ron George, electronic mail interview by author, 15 September 2005.

14 Ron George, website.

15 Ron George, electronic mail interview by author, 8 August 2005.

16 Ron George, website.

17 Ibid.


19 Ron George, electronic mail interview, September.

20 Ibid.

21 Ron George, electronic mail interview, August.


23 Ibid., 47-48.

24 Ibid., 48.

25 Ibid., 47.

26 Ibid., 50.

27 François’s article provides an in-depth examination of the discussed frame/rack systems. He also mentions Mauricio Kagel’s theatre/music pieces for which he has

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designed complex machine driven percussion instrumentariums Michael Udow’s “Timbrack.”


29 Ibid., 21; Also see the “timbre staff notation and setup” section of Chapter 2 of this document for further description.

30 It is important to note that, although the instruments are arranged in keyboard fashion, there is no tuning correlation with the actual notated pitches—only the pitch locations are related to the pitch locations on the staff.

31 Udow, “Visual Correspondence,” 23. See Appendix 1 of this document for a notational example of In and... and Out by Brün. [An idiophone is an instrument that produces its sound through the vibration of its entire body (cymbals, woodblocks, triangles, etc.). A membranophone is an instrument that produces its sound through the vibration of a membrane stretched over a shell or bowl (bongos, timbales, snare drum, etc.). Gary D. Cook, Teaching Percussion, 2d ed. (New York: Schirmer Books, 1997), 2-3].

32 Udow, “Visual Correspondence,” 25.

33 Brün’s piece was not written for the Timbrack, but Udow was inspired to create an instrument that would permit maximum fluidity for the performer of the piece.


37 Dave Hollinden, electronic mail interview by author, 21 July 2005.

38 For an in depth examination of several of Hollinden’s works for multiple percussion, see Dr. Michael Gould’s doctoral document, “Advanced Multiple Percussion Techniques: An Analysis with Musical Approaches to Performance Problems in the Music of David Hollinden” (DMA diss., University of Kentucky, 1999); See Dave Hollinden’s website for instrumentation, performance notes, pdf scores, listening excerpts, recordings, etc: <www.speakeasy.org/~daveh/>.

39 Hollinden, electronic mail interview.


41 Refer to Chapter 2 for a discussion of the layout, pictograms and setup of Cold Pressed.

42 Hollinden, Cold Pressed.

43 Hollinden, electronic mail interview.

44 Ibid.
CHAPTER 4

TIMBRE STAFF NOTATION AND EDUCATION

Playing multiple percussion music... gets one to listening for sound relationships as well as rhythm... sharpens one's awareness of color, timbre, dynamic balance, phrasing and nuance, all of which are important building blocks for that ephemeral thing called "musicianship"... provides a good foundation to cope with music that he will encounter later at the college and/or professional level.¹

In educating the young percussionist, careful attention must be paid to quality instruction on all instruments. In today's realm of the "total percussionist," it is important to immerse the students in all areas of percussion as part of their natural course of musical development. Exposing a student to multiple percussion, along with his or her essential snare drum, timpani and keyboard studies, will help develop musicianship and adaptability to future situations in several ways.

1) It gives the percussionist experience in reading notation for more than one instrument simultaneously.
2) It aids in developing right hand and left hand coordination.
3) It exposes the student to new and different techniques of playing instruments that are otherwise associated with different areas of performance.
4) It creates awareness of the need for balance and good tonal production among instruments of differing timbres.
5) It helps the student become a total percussionist.

As percussion pedagogy continues to advance rapidly, increasingly younger students are executing the previously advanced techniques of the past with greater ease. For
advanced middle school students to perform a four-mallet marimba concerto is not as uncommon as one might believe. However, when those same students are confronted with solo multiple percussion pieces, they are oftentimes at a complete loss as to how to approach them.

Timbre staff notation seems to be an ideal pedagogical foundation for learning the techniques of multiple percussion. Since the student is already familiar with the keyboard concept, the transferring of that knowledge to a multiple percussion piece written in timbre staff notation should not be very difficult for them. One of the most difficult parts of creating music from a multiple percussion setup is the balance and phrasing one must achieve from this mega-instrument that has been fashioned from the arrangement of several smaller instruments of differing timbres. When inundated with not only another new instrument with its own techniques but also its own notation, a student will likely become overwhelmed. By subtracting one of these elements—the notation—students can concentrate on creating music with their multiple percussion setups.

Another helpful aspect of utilizing timbre staff notation is that it will help non-percussionist band or orchestra directors assist their percussion students with both placement of instruments and relating those instruments to assigned pitches. Non-percussionist teachers might feel better equipped in dealing with their percussion students if they have this knowledge available to them. Perhaps if one were to devise an initial fixed setup of instruments in a keyboard fashion, a student could focus on learning the kinesthetic flow necessary to achieve a smooth musical line. Warm-ups and "scales" could be played on the setup just as keyboard warm-ups and scales are played. This would guide the muscle memory and therefore quickly advance the learning process.
Conclusion

Whether a beginning student of percussion or a seasoned performer, one’s final performance of a multiple percussion piece is the direct outgrowth of what a composer initially envisioned and how he or she relayed that image to the written page. How the player interprets that vision rests heavily on whether the notation can be clearly understood and related to his or her multiple percussion setup. If one is to convey to his or her audience the original intentions of the composer, then one must first understand what is notated. It is this author’s hope that this document will provide some notational insight for performers and educators, and that it will assist the potential multiple percussion composer in making an informed decision as to what type of notation will best serve their needs.

It all ties in to what you put on paper and what you expect it to mean to somebody else. . . 2
Endnotes

1 Al Payson, "Multiple-Percussion at the School Level," *Percussive Notes* 11, no. 3 (Spring 1973): 16.
APPENDIX I

SELECTED WORKS UTILIZING TIMBRE STAFF NOTATION

Instrumentation

- piccolo/flute,
- oboe/English horn
- Eb clarinet/Bb clarinet/bass clarinet
- posthorn in Bb
- trumpet in Bb
- trombone
- percussion (timbrack*, 3 snare drums, Eb tubular bell **)
- piano
- violin
- double bass

*Timbrack refers to an instrument configuration and corresponding notation system wherein a number of percussion instruments of disparate timbral qualities are arranged in a physical approximation of a mallet keyboard. The notation for this set-up uses what looks like pitch notation to indicate which instrument to strike, not the resulting sound. For sections 4, 6, 7, and 10 of In and... and Out, a timbrack consisting of twelve instruments is indicated, with a staff notation ranging from first space F natural to fourth space E natural (as if in treble clef). The percussionist is asked to select the instruments, decide the arrangement, and construct the set-up.

INSTRUMENTATION: 4 Timbrepads

A Timbrepad is a group of percussion instruments set up in the configuration of a keyboard, in this case, ('F to E'). The musical staff therefore, refers to timbre placement rather than pitch location. The chart below indicates the timbrepad configuration for this work. (Note: in this work the staff notations for G# and C# indicate wood blocks rather than the frequencies G# and C#, etc. as follows).


Music Staff:

```
\[ \text{\#1, 3, 8, & 12: four temple blocks} \]
\[ \text{\#2, 6, & 9: three woodblocks} \]
\[ \text{\#3, 7, & 10: three cowbells} \]
\[ \text{\#4 & 11: two almglocken} \]
```

Set-up:

<table>
<thead>
<tr>
<th>2</th>
<th>4</th>
<th>6</th>
<th>9</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Suggested Instruments:

- #1, 3, 8, & 12: four temple blocks
- #2, 6, & 9: three woodblocks placed on a foam pad and lightly held in place with tape.
- #3, 7, & 10: three cowbells
- #4 & 11: two almglocken

OR: use one chromatic octave of a vibraphone and then chimes.

Music Staff:

Set-up:

Suggested Instrumentation:


Music Staff:

Set up:

Suggested Instruments:

Perform #3

8 graduated tom-toms
field drum

2 crotales

tambourine with head
bongos: high
low

low log drum

2 pitched gongs: d#5, e5

medium wood block
splash cymbal

(see performance notes for more details)

"Timbre staff" notation and set-up

The group of instruments referred to as the "percussion" group for performer #3 should be physically arranged in keyboard fashion as follows: log drum = f, bongo (low) = g, bongo (high) = a, tambourine = b, pitched gong (d#5) = f#, wood block = g#, pitched gong (e5) = a#. The physical resemblance of this instrument set-up to a keyboard will allow the music to be notated in the same manner as for a pitched instrument. Therefore the performer can play from the notated music in the same manner as if playing a keyboard mallet instrument, eliminating the usual problem of having to memorize which instrument is notated on which line. This "timbre staff" notation is signified by the use of a treble clef with an "x" through it. It symbolizes that keyboard configuration and notation are being used, but that there may be no correlation between the notated and sounding pitches.

For a more detailed discussion, refer to "Visual Correspondence Between Notation Systems and Instrument Configurations" by Dr. Michael Udow.

(percussion quartet, Part 3: multiple percussion — 1988)
Timbre staff notation and instrument setup:

Physically arrange the instruments so as to resemble the keys on a keyboard instrument.

This notation is thus the same as for a keyboard instrument, but there is no correspondence between notated and sounding pitch. This notation is referred to as a “timbre staff” and is signified by a treble clef with an “x” through it. (isplay)

For more discussion of the timbre staff, see Michael Udow’s “Visual Correspondence Between Notational Systems and Instrument Configurations,” Percussionist, vol. 18 No. 2 (Winter, 1991) published by Percussive Arts Society.

Example A.8. Hollinden, Slender Beams of Solid Rhythm
(solo multiple percussion — 1991)
Physically arrange the instruments so as to resemble the black and white keys on a piano, as shown below. The music is then notated as for a keyboard instrument. This type of notation is referred to as a timbre-staff. It is signified by a treble clef with an X through it as there is no correspondence between notated and sounding pitch. (For more details, see Michael Udow’s “Visual Correspondence Between Notational Systems and Instrument Configurations,” Percussionist, vol. 18, no. 2 (Winter 1981) published by the Percussive Arts Society)


**PLAYER 4**

Vibralap - mounted  
Brake Drum - medium resonance  
2 Cowbells - medium and small, resonant  
Metal Pipe - medium resonance  
2 Crotales - “c” and “f”  
Tam tam - large

Sleigh Bells - suspended  
Auto Spring - suspended  
Bell Plate - suspended  
2 Triangles - suspended  
Crash Cymbal - thin and bright  
Sizzle Cymbal - lots of sizzle  
Chinese Cymbal - large and brassy

Mallets: triangle beaters, bow for crotales, soft tam-tam mallets, very thin metal beaters

PLAYER 5

Bass Drum - large
Field Drum - low pitched, with snares
Cowbell - large
4 Tom toms
2 Congas
Bongos - sounding higher than congas
2 Small Drums - high pitched, extremely dry sound
Glass Wind Chimes
Marc Tree
Finger Cymbals - thin and light

Mallets: wood sticks, very hard timpani mallets, hard bass drum mallet, soft bass drum mallets, triangle beater


PLAYER 6

2 Timbales
Tambourine - with head
Cowbell - large
Log Drum
5 Temple Blocks - graduated
3 Wood Blocks - large, medium, small
Clave
3 Timpani - 30", 25", 23"

Mallets: hard mallets, hard timpani mallets, light timpani mallets


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PLAYER 7

Bass Drum - small
Field Drum - low pitched, with snares
Cowbell - large
4 Tom toms

2 Congas
Bongos - sounding higher than congas
2 Small Drums - high pitched, extremely dry
Glockenspiel

Mallets: wood sticks, very hard timpani mallets, hard bass drum mallet, soft bass drum mallets, triangle beaters


PLAYER 8

Tambourine - no head
Brake Drum - medium resonance
2 Cowbells - large and small, resonant
Metal Pipe - medium resonance
2 Crotales - "d" and "b"^7
Tam tam - small

Sleigh Bells - suspended
Auto Spring - suspended
Bell Plate - suspended
2 Triangles - suspended
Crash Cymbal - thin and bright
Sizzle Cymbal - lots of sizzle
Chinese Cymbal - large and brassy

Mallets: triangle beaters, bow for crotales, soft tam-tam mallets, very thin metal beaters


![Timbrack Instruments Diagram](image)

**Soloist Instrument Setup and Timbre Staff Notation:**

Percussion Instrumentation

2 Tom Toms (medium and large)  
2 Congas  
Bongos  
Cowbell (large)  
3 Woodblocks (medium, small and piccolo)  
Splash cymbal  
Crash cymbal (small, bright)  
2 Chinese cymbals (small and very small)  

High Hat  
Tam-tam (with head)  
Crasher  
Snare drum (medium)  
Triangle (medium)  
A玲locken (small)  

Instrument Setup and Timbre Staff Notation:

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