Percussionist

An Official Publication of
PERCUSSIVE ARTS SOCIETY

VOLUME XIV, NUMBER 3
SUMMER, 1977

PERCUSSIVE ARTS SOCIETY
(PAS)

PURPOSE--To elevate the level of music percussion performance and teaching; to expand understanding of the needs and responsibilities of the percussion student, teacher, and performer; and to promote a greater communication between all areas of the percussion arts.

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In this issue

BEETHOVEN'S USE OF THE TIMPANI

By
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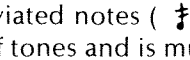
E-flat--*A*, Ludwig van Beethoven calls for this diminished fifth as the tuning of both timpani in the introduction to the Second Act of his opera *Fidelio*. All textbooks report this bold innovation, unique for that time, but unfortunately not the why and wherefore. Also, we are not told that Beethoven created other novel departures for the timpani and, that to the present day, he really has not been surpassed by any composer in the use of these magnificent, intense-sounding instruments. He wrote the minor sixth *f*--*A* to connect the keys of F major and D major in the Scherzo of his Seventh Symphony and the octave *f*--*F* in the last movement of the Eighth as an expression of joyful exuberance. The same octave tuning gives a rhythmic-thematic element to the Scherzo of his Ninth. It even seems that Beethoven has often taken a rhythm, characteristic of the timpani, for the foundation of his thematic invention, as, for example, in the Fifth Symphony, Op. 67, or the Piano Concerto in C minor, Op. 37.

In all his scores Beethoven indicates the kettledrums by their Italian name *timpani*, never by the German *Pauken*. Moreover, our respected Viennese teacher and timpanist, the late Prof. Hans Schnellar, listening carefully to the sound of the word timpani, said that the kettledrums in Beethoven's music should always ring *timp*, never *Pauk*. Today the term *Pauken* is regretfully more current (in German speaking countries). Is this perhaps because of a changed conception of sound? Before Beethoven the timpani were tuned to the tonic and dominant, i.e., in fourths, less often in fifths; but he enlarged this technique to include other intervals and he understood as no one else how to employ the timpani as full sounding, noble, heroic, and also technically brilliant instruments. In doing this he restricted himself wisely to the range of the best-sounding octave *f*--*F* on only two instruments. Of course the instruments that were available at that time were simple hand-tuned timpani that no doubt had a beautiful tone, but were slow to retune. Mechanical timpani, those that can be tuned quickly by means of a single lever, were first invented in 1812 by Gerhard Cramer in Munich. In Vienna, where Beethoven had lived since 1792, musicians were working on improving the timpani. The earliest news we have about this is from the year 1831, when the timpanist Georg Hudler applied for

a position as timpanist in the Kaiser's court orchestra. The account refers to his mechanical timpani. However, he did not receive the position, he became a municipal official; a private Viennese *Musikverein*,. (music society) bought the new timpani. The real designer of these new timpani might have been Georg's father, Anton Hudler, because he was the foremost timpanist of his time, at first in the imperial court orchestra and at the Karntnertor Theatre, then later also the first timpanist of the Vienna Philharmonic Orchestra. Anton Hudler was born on 7 March 1784 in Zwettl, Lower Austria; he died in Vienna in 1856. Anton's father was also a virtuoso timpanist--there was such a thing in those days--; his teacher was Anton Eder (1753-1813), imperial timpanist and timpanist at the Karntnertor Theatre. Anton Hudler married Eder's daughter and became his successor on 1 January 1811 at court and in the theatre, where he was already employed as Eder's "heir apparent." These timpanists must have been excellent performers, because Beethoven wrote passages in all his compositions that assume virtuosity and that give difficulty to many people even today.

In former times (mid-18th century) timpanists played poor sounding rolls by having one rebounce follow another as on the snare drum. Because of this practice Haydn, Mozart, and their contemporaries frequently wrote out exactly-counted single strokes which they notated as abbreviated notes (). This sounds like a tight succession of tones and is much better than a press roll. Today, of course, the roll is played by all timpanists only with single strokes, because more sound is needed by the greatly enlarged orchestras and concert halls. Nevertheless one should draw his conclusions from the type of notation, whether abbreviated notes or trill sign (), and play a roll marked with a trill sign softer than the full-sounding abbreviated-note roll.

As early as in the First Symphony, Op. 26 (1800) Beethoven demonstrates his mastery in the use of the timpani. Yet how impressive is the punctuated rhythm in the Andante cantabile con moto (mm. 53-60, 81-88, 153-161) and how jokingly playful is the so technically difficult eighth-note movement on c and G in the Menuetto-Allegro molto e vivace! (mm. 45-58).

In the Second Symphony in D major, Op. 36 (1803) (timpani tuned to *d* and *A*) we meet with a differentiation between rolls notated with abbreviated notes and trill signs, each written for the desired fullness of tone of the roll (cf. 4th movement, mm. 372-73 and 376-7).

But above all the e-flat and *B*-flat in the *Eroica* (1805) makes us realize, that for a meaningfully artistic performance the quality of a single beat is far more important than abbreviated or trill-signed notes--that is to say rolls; the timpani should convey a heroic expression. The rich capacity for transformation of the timpani is then shown in the slow movement, Marcia funebre, for which we have to retune from e-flat and *B*-flat to c and G. In piano as in forte all thoughts of mourning ascend in

the intensive timbre of the skin. But however, if these c and G tones are only two beats sharper than the tuning of the strings, then the collective harmonies of the winds become confused. And is it not a splendid idea to end descending to the grave--the C minor scale--as it were with a solo c on the timpani (m. 238). For the player that is an extremely delicate thing, because such a flat area of organic skin does not always let a totally pure tone resound.

In the first, third, and fourth movements of the Fourth Symphony, Op. 60 (1807) we tune our timpani to *B*-flat and *F*; the *B*-flat should sound golden, with a more beautiful timbre than so many ultra-modern compositions based on tone-color. Only in the Adagio movement are the timpani tuned a fourth higher to e-flat and *B*-flat in order to play the rhythmic ostinato soloistically equivalent with all the other instruments (mm. 9, 40, 49, 73, 111).

The timpani are once again tuned to c and G in the Fifth, the *Fate* Symphony, Op. 67 (1808), and, indeed, in the first movement they powerfully proclaim the knock of fate several times. The second movement then digresses to the key of A-flat major; however, the intensely sounding c and G of the timpani quite often reminds us that the main tonality of the entire work is C minor or C major. It is a wonderful aspect of the Viennese Classical style, that in spite of all the harmonic departures the constantly tuned timpani always remind the listener of the principal key. Splendidly composed is the timpani solo on c that establishes the connection from the third to the fourth movement, to the outburst of jubilation of the entire orchestra (mm. 324-73). The first four measures of this solo assume the rhythm of the previous theme, only to disappear into nothingness during the next four measures. Thereafter begins with nervous tension the great intensification to the radiant key of C major. Many timpanists play the first twelve measures of this solo with the right hand, i.e., with the right stick alone, so that the beats are all equally strong. It really should not be played that way. First, because it is a sign that the player's left hand is underdeveloped, and second, that the essence of the music, rhythm as an eternal change from accented to unaccented, from strong to weak, is lost. A splendid effect results if the single strokes in the last thirteen measures of this symphony are allowed to resonate and not, as so often is heard, are dampened.

In the *Pastorale* Symphony, Op. 68 (1808), the timpani are used little, but ever so powerfully for thunder and lightning (4th movement, mm. 21-55, 80-83, 106-119, 137-43).

In the Seventh Symphony, Op. 92 (1813), rhythm and tone color again dominate with the timpani in the then seldom (or not at all?) used fifth-tuning of e and *A*. Indeed, in the first movement we enjoy the leaping dance rhythms of the 6/8 measures, that should always be played lightly and elegantly  and not  because this entire movement would then sound clumsy and sluggish. In the Scherzo the tim-

pani are tuned to the minor sixth, *f--A*, a tuning that was not written before Beethoven. It is magnificent; Beethoven never exceeds the normal, good sounding range of the timpani *(f--F)*, and yet he always discovers something new, something never done before, through this minor sixth with its interesting tonal combinations and also a wonderful connection of the Scherzo's two tonal areas, F major and D major. In the last movement (timpani in e and *A*) the sticks have a lot to do, everything glistens with a joy of life and a delight of the senses.

In addition Beethoven composed in the same year (1813) his Eighth Symphony, Op. 93; again something new: the octave tuning *f-F* in the last movement, that in pianissimo creates a subtle accompanimental figure (mm. 157-65, 351-59, 469-81).

Later this octave leap received especial meaning in the Scherzo of the Ninth Symphony, Op. 125 (1826), where the theme begins with a rhythm typical of the timpani (m. 5). In the Adagio the timpani play two small, but very beautiful solos (mm. 139-41), with the then completely unusual fifth *f--B*-flat, and in the final measures of the movement they play an expressive duet with the pizzicati of the contrabasses (mm. 151-53); event at the end--again something new--both tones are struck exactly together (mm. 153, 54, 57). But there are also difficult passages in the first and last movements, in which the timpani tuned to *d* and *A* and rhythmically precise, must be played with a magnificent full tone.

Only seldom before 1778 were parts written for our instruments, whether in symphonies or in operas. It was primarily Haydn and Mozart who liked to use a pair of timpani, usually tuned in the fourths, *c--G*, *d--A*, and e-flat--*B*-flat with the trumpets. The fifth *d--G* was used rather infrequently. But the thematic use of the timpani remained reserved to the genius of Beethoven; for example, by 1800 in the Piano Concerto No. 3 in C minor, Op. 37, and a few years later (1806) in the Violin Concerto in D major, Op. 61, which even begins with a timpani solo.

We also find many soloistic passages in Beethoven's only opera *Fidelio*, Op. 72 (1814): the Overture is revolutionary in the use of the tones e and *B*, the March of the Prisoners (Act 1, sc. 11, Allegretto vivace) is dark and mystical with *B*-flat and *F*, with these two tones the First Act is concluded. The Introduction to the Second Act requires the timpani to be tuned to e-flat and *A*, the first time in the history of music that a diminished fifth was used as a timpani tuning. But why this particular difficult interval? And how should this mysterious passage be played?[1] They are not muffled strokes of fate. The unison F immediately at the beginning of the act, this could be a call of fate, even in piano, probably because the fate of the imprisoned Florestan is not of much value. The next measure, a F minor chord in the high range of the wind instruments, held out forte, lets us hold our breath over the limitless sorrow that befell this man. After both measures, with a changed chord, are repeated, the beats describe the following in which fate has taken part (mm. 7-10); perhaps the repeated horn call describes the absolute

power of the Governor Pizarro. But the noble Florestan in his underground room moans (mm. 11-13), the strings describe this vividly. Yet the soft oboes and first violins recall the angel Leonore. Here the curtain should rise: Florestan lies on his bed in a damp cold cave near an old cistern, there is "a dreadful silence." Nothing is heard but our own heartbeats--the sixteenth notes in the strings--and with a drip-drip, waterdrops falling from the ceiling (m. 14). Whoever has experienced something similar in a cave or whoever can still remember the dripping of water from the tap into his grandmother's old laundry tub, hears in this irregular fall of waterdrops something quite like the diminished fifth. Already in the next measure (m. 5) our pulse goes faster with excitement--the strings play sixteenth-note triplets--and the drops fall regularly. But then comes the great downpour, we tremble with fear (m. 16). Naturally one should not try to dissect such a magnificent composition, yet maybe once it can be permitted to let one's vivid imagination run free in order to find an explanation of this curious passage with the timpani solo tuned in a diminished fifth.

Beethoven has written very little for percussion instruments. In the last movement of the Ninth Symphony (Finale-choral section, Alla Marcia) he uses the "Turkish Music," i.e., bass drum, cymbals, and triangle; in Wellington's Victory (originally conceived for the Panharmonicon) the bass drum, snare drum, and large ratchets *(Ratschen)* are used to illustrate the noise of battle. At the first performance of this work the percussion parts were played by three young musicians who later would become famous: Johann Nepomuk Hummel, the piano virtuoso; Giacomo Meyerbeer, the great composer; and Ignaz Moscheles, who prepared the piano reduction of Fedelio.[2] Whenever many chroniclers report that one of these three had once played the timpani, it might be that in this report the bass drum was confused with the timpani. Beethoven conducted both concerts himself on the 8th and 12th of December (1813), soon after the great battle over (Napoleon) near Leipzig. On the program were Wellington's Victory and the Seventh Symphony. But with these works every non-professional would have difficulties on the timpani. Indeed, Mozart had reported to his father concerning the Society of Viennese musicians: "All the members are good amateurs, but for bassoon, trumpets, and timpani one invites professionals." After all it is not much different with the amateur musical societies of our time.

In Beethoven's greatest spiritual work, the *Missa Solemnis*, Op. 123 (1824), the timpani are brilliant in all their sometimes technical and extremely difficult entrances, be it in the Kyrie through their grandeur and devout tranquility or in the Gloria by their festive joy (mm. 1-40). In the Agnus Dei they are intended to portray military drums and the sounds of battle, a totally unexpected soft solo on *B*-flat interrupts the concluding *pacems* in D major (mm. 405-09, 412-15).

Today Beethoven's example of how one can and should write for

these splendid instruments has influence everywhere; and up till now he has been surpassed by no one, neither in the use of technical possibilities nor in musical application of when the timpani should resound with heroic tone and noble power.

[1]For an expanded discussion of this passage see Richard Hochrainer, "The Waterdrops," trans. Harrison Powley, *Percussionist* 11 (Summer 1974):143-44.

[2]See Anton F. Schindler, *The Life of Beethoven*, trans. Ignace Moscheles (London: Henry Colburn, 1841; reprint ed., Mattepan, Mass.: Gamut Music co., 1966), p. 147.

O

PERCUSSION RESEARCH

By
Dr. Sherman Hong
University of Southern Mississippi

The following is an outline submitted by the author of the study. Seiler, Charles. "A Survey of the Use of Percussion in Fifty Selected Musicals from the American Musical Theatre 1898-1975," unpublished thesis, Southern Illinois University, 1976.

An Outline

I- Introduction
- A) Reasons for undertaking study
  - 1) To substantiate percussion in musical theatre as an art form.
  - 2) To give laymen an idea of the percussive needs of musicals, and the feasibility for performance.
  - 3) To increase the body of research.
- B) Materials used
  - 1) Recordings
  - 2) Piano-vocal scores
  - 3) Percussion parts
- C) Study will show
  - 1) Statistics
  - 2) Generalizations made on the ways percussion has been and is being used.
- D) Problems
  - 1) No full scores available
  - 2) Percussion parts expensive to rent
  - 3) Discrepancies between written parts and actual performances
  - 4) Fidelity of recordings prior to 1955 not very good
  - 5) Recordings usually make cuts in the ballets and dance numbers where percussion is most used.

II- Brief History of American Musical Theatre
- A) The beginnings
- B) Extravaganza
- C) Operetta
- D) Burlesque
- E) Revue
- F) George M. Cohan
- G) Early Musical Plays
- H *Showboat*
- I) Social Commentary of the 1930's
- J) Rodgers and Hart
- K) Rodgers and Hammerstein
- L) Musicals of the 1940's and 1950's
- M) Musicals of the 1960's
- N) Rock Musicals
- O) Black Musicals
- P) 1970 and beyond-new developments

III- Percussion instruments and Techniques found in the American Musical Theatre
- A) *The Fortune Teller*
- B) *Showboat*
- C) *On Your Toes*
- D) Rodgers and Hammerstein
- E) Musical comedies of the 1950's
- F) Musical plays of the 1940's and 1950's
- G) *West Side Story*
- H) Musicals of the 1960's
- I) Rock Musicals
- J) Black Musicals
- K) New wave musicals

IV- The Use of Percussion in the American Musical Theatre
- A) Beat keeping
- B) Dance rhythms
- C) Give impression of time or place
- D Create moods
- E) Sound effects
- F) Colors for their own sake

V- Table and Graph of the distribution of Percussion Instruments in the Fifty Musicals Studied.

VI- Bibliography
- A) Books
- B) Piano-vocal scores
- C) Percussion scores

VII- Discography

VIII- Appendices
A) Listing of all Percussion Instruments used in the Musicals in the study.
B) Orchestrators
C) Personal Vita

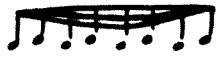
Scott Huston
QUIET MOVEMENT KANON FANTASY
for Two Marimbas
Analysis by
Cynthia Soames
PAS Historian

Scott Huston, Professor of Composition at the College-Conservatory of Music of the University of Cincinnati, is a prolific composer with twenty-seven (27) published works and numerous commissions and performances by major orchestras. His *Suite for Solo Timpanist* is published by G. Schirmer. The *Quiet Movement Kanon Fantasy* for Two Marimbas, completed Dec. 9, 1975, is available from the composer, c/o the College-Conservatory of Music, University of Cincinnati, Cincinnati, Ohio 45221. $3.75 (ed. note - this work will probably be published in the future. Dr. Huston is recuperating from a series of heart attacks, thus the composition has not been submitted for publication.)

Analysis

Huston's composition for two marimbas is in three movements: I. Quiet Movement, II. Kanon, and III. Fantasy. A former marimbist, Huston is creative in his idiomatic use of the marimba, employing effects that are not unusual, but that produce a variety of sounds and colors. Techniques scored include playing with the mallet handles (rattan) on the instrument, mallet handle played against mallet handle (stick on stick), and producing a pitched but dead sound by pressing the ball of a rubber mallet lightly on the nodal point of a specific bar and striking the ball of that mallet simultaneously with the opposite mallet (mallet against mallet). To perform the composition, both marimbists will need two paris of very soft yarn mallets and one pair each of soft rubber, hard rubber, and medium cord mallets. In addition, Huston suggests wrapping the handles of the soft yarn mallets with moleskin, sponge, or cork to lesson the "attack" sound when the instruments are

played with mallet handles in the third movement. During the first movement when four mallets are used, Huston indicates the first two notes to be sounded (of four given notes) by writing them at the beginning of the measure. The following performance instructions are provided with the score:

1.  as in measure one, may be played  or  , but never strict or measured.
2.  Slurs are intended to indicate an even legato, with no break
3.  is not a strictly measured roll, but depending on the dynamic, a sensitive gradation of rhythmic diversion.
4.  means a continuous roll, with no attack on the downbeat.

The first movement of Huston's composition is metered (5/4 time) and begins Adagio (♩=60). The hushed texture is based on a consonant and dissonant homophonic plan that reaches maximum dissonance at .62 of the movement, measure 46. The dynamic level does not reach forte until measure 19. The uneven tremolos are interrupted by eighth note, triplet, and quintuplet rhythmic ideas, building to a short rest at the end of measure 38. Measures 39 to 46 are contrapuntal, with groups of five sixteenth notes that increase in dissonance. Huston states that during this section the beat must remain steady (♩=60), but the groups of sixteenth notes may be uneven within themselves. Measure 46, .62 of the movement, is marked Poco Piu Mosso (♩=84). The dissonance and dynamic level subsides and the movement returns to the Tempo Primo (♩=60) in measure 53. The movement ends as softly as it began with a ritard, emphasis on previous rhythmic ideas, and an important spatial rest procedure. The movement lasts 5'30".

The second movement is a freewheeling, twelve-tone Kanon that lasts approximately 3'20". Marimba I begins the movement alone, with Marimba II entering 20 seconds later. Player II thus follows and "mimics" player I throughout the movement. Huston's rhythmic, melodic, and timbre manipulations leave no doubt as to the plot of the movement. The Kanon consists of five sections that are not metered, but given specific time limits and tempi. Although the resultant sounds of the movement are aleatoric, the texture is not. The parts overlap throughout the movement, creating alternating situations where one part is contained within a range created by wide leaps in the other part. To produce this texture, the tempi and time limits set for each section must be followed closely. The movement begins "ad libitum" with an open, uneven tremolo. Following a two second rest, Player I begins a tempo marked Lazily (♩=72). The first section lasts 20 seconds, with Marimba II beginning section one as Marimba I moves to the second

section. The second section is marked ♩=84 and lasts approximately 42 seconds. Huston recommends the use of soft rubber mallets in both the first and second sections. A three second rest separates the second and third sections, both of which are marked ♩=84. The third section lasts 53 seconds and cord-wound mallets are recommended for this section. The fourth section lasts 21 seconds and utilizes the "clicking" of stick on stick technique. Section five is marked ♩=96, lasts 19 seconds, and employs the sound of mallet on mallet technique. Huston suggests the use of hard rubber mallets for the fifth section. The performers have a choice of three options, including four codas to end the movement. The four codas are metered, lasting 13 seconds, 10 seconds, 7 or more seconds, and 16 seconds respectively. Option two provides the choice of either a fortissimo or pianissimo ending and the use of Coda IV. This option is perhaps preferable to ending with options one or three, in that a fortissimo ending is possible, to contrast with the pianissimo endings of movements one and three.

The third movement, Fantasy, is a scherzo. It begins like the first movement, Adagio (♩=60), and pianissimo. The beginning is merely a suggestion of a thought, as the movement quickly moves to a Presto section where the instruments are played with mallet handles. Huston notates "white" or "black" keys to be played in groups of five, six, seven, eight, nine, 12, or 14 notes interspersed with rests of one, two, or three seconds, creating disputatious dialogue between the instruments. The Adagio thought briefly returns to introduce a second Presto section, similar to the first. This Presto section is separated by a rest of 1 1/2 seconds from a third Presto section in which the groups of notes become longer and more rhythmically involved. Marimba II sets the tempo at ♩=80 for a fragile, "hesitant" section in common time. Both players change to soft rubber mallets for this 26 measure section which employs the technique of mallet on mallet extensively. A short rest follows and the movement, and in fact the entire work, climaxes with a section that combines the rhythmic, melodic, and timbre considerations of the entire work. This section, .62 of the composition, is not metered, but marked ♩=84-88. The melody is isorhythmic, isometric, and marked "light, lively, capricious." The movement builds to a fortissimo climax and then subsides as does movement one, with a poco ritard followed by a molto ritard. The spatial rest procedure is observed as the work subsides and Huston suggests a return to yarn mallets for the final molto ritard.

Performance Problems

Huston's composition does not exceed average technical difficulty for the professional performer. Both performers should have a complete knowledge of the full score and allow sufficient rehearsal time to coordinate and realize the musical qualities of the composition. Care

should be taken to balance the acoustical properties of sticks and the individual instruments. College performance majors should find this composition a musically challenging experience.

Time and Place

Oct. 28-30, 1977 PASIC Annual Convention
University of Tennessee, Knoxville, TN

Tentative List of Participants includes:

Keiko Abe-Xylophonist from Japan
James Blades - London Symphony Percussionist
Ed Soph - Jazz Drummer
Saul Goodman - Former Timpanist, N. Y. Philharmonic
Morris Lang - Percussionist, N. Y. Philharmonic
Jack Conner - Keyboard Mallet Artist
Michael Boulanger - Canadian Drum Corps Association
William Schinstine - Percussionist and Composer
Nexus - Canadian Percussion Ensemble
Steel Band - Northern Illinois University

Plus other performing groups, exhibits, banquet, and Hall of Fame Awards.

THE VIBRAPHONE: A SUMMARY OF HISTORICAL OBSERVATIONS WITH A CATALOG OF SELECTED SOLO AND SMALL-ENSEMBLE LITERATURE

by Harold Howland

About the Author:

*Mr. Howland received his B.A. degree, **cum laude** from Madison College, Harrisonburg, Virginia, and his M.A. from the Catholic University of America, Washington, D.C.*
He has performance experience in all aspects of percussion: classical, experimental, jazz, folk, rock, and pop. He also has extensive recording experience at his private studio in Vienna, Virginia.
He is presently forming the Harold Howland ensemble, a small group which will perform many varied forms of music from every period.

INTRODUCTION

This work is intended for the use of well-informed musicians engaged in the serious study of percussion. It has two purposes: (1) to present a coherent summary of historical information on the vibraphone; and (2) to provide the percussionist with a catalog of works for solo vibes and for small ensembles featuring vibes. The paper is therefore divided into two Parts.

Part one attempts to summarize and to place into perspective the great body of conflicting information which exists on the history of the vibraphone. As an aid in the understanding of this section, it is helpful for the reader to be aware of Jacqueline Ann Meyer, "The History and Development of the Vibes".[1] At present the only comprehensive source devoted to the topic, it is primarily a collection of physical descriptions taken from manufacturers' catalog material, and as such it contains many facts and illustrations which are no longer available to the public. Her work begins with the introduction of the earliest vibraphone-like instrument and continues up to the year 1972. Much of Meyer's primary catalog material expired decades ago, and in this way she has performed a valuable service in tracing the development of various bar dimensions, motor types, frame designs, and so on. It is therefore not the purpose of this paper to duplicate such information; it is, however, necessary to acquaint the reader with Meyer's contribution, since the writer has attempted to amplify, clarify, and, in some cases, correct certain aspects of her work, thereby presenting a logical extension to it.[2]

Part Two consists of a catalog of solo and small-ensemble literature. It can in no way be considered to be complete, although it includes several works not found in other catalogs. Since the format of many standard catalogs makes it impossible for the reader to determine the

instrumentation of a given work unless it is specified by the composer/arranger as part of the title, the writer presents this compilation merely as a convenience to those in search of this particular type of music. Each entry is composed or arranged specifically for the vibraphone; no work is included which is intended to be a general "mallet piece" or for which the instrumentation is not specified by the composer, arranger, or publisher. Although the writer has attempted to make the list as complete and as up-to-date as possible, he acknowledges the fact that any compilation of this sort is likely to show errors and omissions.

Possible Ancient Forerunners

It is generally agreed that the vibraphone is a product of experiments made in the United States between 1916 and 1927, but some authors have suggested that the instrument may have in some way been inspired by various gamelan and Indian bar percussions which date back to antiquity. The Javanese *saron* consists of a series of bronze slabs arranged horizontally over a wood sounding box. The slabs are drilled at one end and fixed to the frame with a small pin, in the manner of the modern British and American glockenspiel. (The glockenspiel manufactured by Studio 49 of Munich uses the cord-suspension technique found on xylophones, marimbas, and vibraphones.) Similarly, there is an isolating pin at the opposite end, beside each slab, and the edges of the frame are padded for insulation. The range of the saron is one octave, and the instrument is built in four main sizes, each an octave apart. Although there is some disagreement as to the number of bars on each saron (one description estimates from one to twenty or more, another from six to fiteeen), James Blades reports that in the *slendro* octave (divided into five equal parts) there are six slabs, and seven in the *peloq* (with five unequal divisions). The bars are arranged in a single row.[3]

Another gamelan instrument, the *gender* (also referred to as *gender wayang* in reference to its role in accompanying the Javanese shadow puppet play called *wayang purwa* or *wayang kulit)* is similar to the saron except that (1) the bars are generally strung by two cords so that they are suspended a short distance above the edges of the frame, and (2) closed bamboo resonators, tuned in unison with their respective slabs, are positioned vertically inside the sounding box, resulting in a tone richer than that of the saron. (The writer somewhat agrees with Elie Siegmeister who says that the sound of the gender resembles that of the vibraphone.)[4]

The cradles of these instruments are sometimes ornamented and are occasionally inlaid with mother-of-pearl. (Blades mentions sarons curved on the shape of a crouching dragon.) Similarly, the beaters are often ceremonial in appearance. Blades says. "The mallet completing

the saron in the British Museum represents a fish with open mouth holding the striking piece."[5] Both the saron and the gender supply melody and variation in the gamelan. (Blades's implication that the performance technique involves only one mallet - which indeed usually is the case - is reinforced by his statement that "the performers on either instrument display a marked agility and co-ordination of the hands in rapid passages, one hand acting as a damper, as the other strikes the following note."[6]) Jacques Delecluse cites a saron found in Java which predates the volcanic eruption of A.D. 915.[7]

Blades speaks of the *jalatarang*, an instrument which retains prominence in Indian music. In ancient Indian literature it is called *udaka vadyam*, its method included in the sixty-four arts *(Chatush-shashti Kalas)*. The name *jalatarang* means "water waves," and the instrument consists of a set of bowls, originally metal but later replaced by porcelain, which are partially filled with water. Each bowl has a distinct pitch and sonority and is tuned, naturally, by regulating the amount of liquid which is poured into it. The bowls are arranged in a semi-circle around the performer, who plays them with thin, bamboo sticks, sometimes tipped with felt or cork. The connection of the jalatarang with the vibraphone is limited to its role as a unique tone color and to one technical feature:

> It is used in the orchestra and as a solo instrument where, in the hands of a skilled performer, the crystal-clear tone of the instrument is distinctive in moods, languorous or agile. A shake or quiver (the *gamaka*) is produced by placing a small wooden spoon into the cup a number of times after the vessel has been struck (rendering the vibraphone a late arrival it seems).[8]

One can easily draw comparisons between these instruments, especially the gender, and the vibraphone. Showing a significant historical connection, however, is another matter. Besides the fact that there is nothing more in common here than between the modern xylophone and the Ethiopian ambira or between the modern pedal timpani and the Persian naqqara, there is no evidence to suggest that the developers of the vibraphone were even aware of such associations. The vibraphone is a product of the curiosity of two American craftsmen whose daily occupations included the continuous invention of novelty instruments for vaudeville; the idea that later historians might imply these parallels would probably never have occurred to these men.

The Leedy Vibraphone

The story of the early development of the vibraphone has been told many times, each author omitting his share of detail. The writer now presents his version, presuming to omit only those details which are covered by Meyer. Much of this information was given to the writer in personal correspondence and in an interview by Hal Trommer, Sales

Manager of J. C. Deagan, Inc. since October 1950 and one of the few links with the individuals who developed the instrument.

During the early 1900s, the Leedy Manufacturing Company of Indianapolis was producing an instrument called the Steel Marimbaphone. Three octaves (F^3 to F^6) in range, the pin-fixed steel bars were 2-1/4 inches wide in the low register, 1-1/2 in the high, and one-eighth of an inch thick. The outer edges of the bars were curved in a concave manner and extended about two to three inches beyond the edge of the frame. Each row could be tilted upward so that the bars were positioned vertically and the resonators horizontally (resonators for natural notes facing the performer, those for sharp notes directed away), and in this position the curved edges of the bars could be approached with a bow.[9] Meyer, who shows an illustration of the Leedy Steel Marimbaphone on page 3 of her thesis, says that another instrument, the Steel Marimba, was the same as the Steel Marimbaphone except that the bars were permanently fixed in the horizontal position. (She mistakenly reports that, conversely, the Steel Marimbaphone was intended solely for bow performance.)[10]

In 1916, Herman Winterhoff, the Vice President of Leedy, conceived the idea of applying a *vox humana* effect to the ringing sound of the Steel Marimbaphone. To do this he attached a motor to the instrument, near the floor, which alternately raised and lowered each set of resonators. This experimental model was called the "Vibratone." Meyer cites a second Winterhoff invention on which the resonators were moved laterally.[11]

The first model to show pulsators in the tops of the resonators had butterfly fans which featured a rocking back-and-forth motion rather than the complete revolution characteristic of the modern pulsator. Both this and the moving-resonator designs were discarded because they involved excessive mechanism and noise.[12] (It is curious that no author has commented on what surely must have been the distracting appearance of an instrument which featured resonators in constant motion during performance; this in itself would seem to be sufficient cause to seek a more favorable means of obtaining the effect--even in the days of vaudeville.)

The year 1921 marks the introduction of the revolving-disc pulsators; it was then also that the motor was moved from a position near the floor to one closer to the bars, hence closer to the performer's reach. (This motor was 110 volts AC-DC--"Universal" type--, standard for vibe motors until after World War II, when it was no longer necessary to locate direct current.) As with the conventional wood-bar marimba, there was no damper pedal. This new instrument, with its thin, flat, steel bars, revolving-disc pulsators; and free-ringing, bright steel tone, was christened "Vibraphone" by George Way, then Sales Manager and Advertising Manager for Leedy. Julius Wechter claims that Way coined the term in 1922, but there may be reason to doubt this, as is dealt with

below.[13] (The instrument was demonstrated at the Rudolph Wurlitzer Store in New York by a young performer named Clair Omar Musser.[14]) For an illustration and detailed description of the Leedy Vibraphone, see Meyer, pages 3-6.

About 1924 (Leedy promotional material designates 1925), a very popular vaudeville circuit artist named Louis Frank Chiha ("Signor Friscoe") recorded "Aloha Oe" and "Gypsy Love Song" on Edison 51401-L. His instrument was the Leedy Steel Marimbaphone with revolving-disc pulsators. Wechter, who maintains that the name "Vibraphone" had appeared in 1922, says that Chiha's instrument, delivered to him in 1923, was called a Metal Marimba -- and that as a result of the popularity of "Aloha Oe" (about 1924) and the subsequent influx of orders Leedy chose to adopt the name "Vibraphone"! Trommer recalls George Way as stating the instrument did not have a name when Chiha recorded it.[15] Thus the reader can see the beginning of a certain confusion over nomenclature which later was to be compounded and which, of course, remains to some extent in the present day. Whether Way actually designated the instrument to be marketed as a Vibraphone in 1922, or whether he coined the term in 1922 and then applied it officially after the success of Chiha's recording is, if now unknown, certainly unimportant. (The latter possibility is by far the more likely, since Way told Trommer that he had " 'dreamed up' the name a couple of years before the first [promotional] folder was printed (1924/25)."[16]

Of great importance, however, is the fact that "Aloha Oe" provided widespread exposure of a new and unique instrumental sound and led towards the refinements which later produced the vibraphone as it is known today.

The Deagan Vibra-Harp

Perhaps the nomenclature problem may be blamed on the organ industry. The first quarter of the twentieth century was the age of the orchestral theatre organ, an instrument designed for the accompaniment of silent films and stage shows and for the performance of light music. Robert Hope-Jones, the pioneer in this field whose shortlived organ firm was taken over about 1910 by The Rudolph Wurlitzer Company, introduced his famous Unit Orchestra as "a new instrument avowedly designed for amusing a large section of the public."[17] This organ found a home in many theatres across the United States, where it was used to "substitute" for an orchestra. In a lecture for the National Association of Organists in 1910, Hope-Jones explained the design of his most famous model, built in 1907 for the Auditorium at Ocean Grove, New Jersey. A typical early theatre organ, it featured a host of simulated orchestral sounds, as described in this excerpt from Hope-Jones's lecture:

The old departments of Pedal, Great, Swell, Choir, and Solo are abandoned in favor of Foundation, Spring [sic], Woodwind, Brass, and Percussion departments. Each of these latter is enclosed in its own independent cement swell box. The whole organ is treated as a unit. Practically any of the stops may be drawn upon any of the manuals (or on the pedal) at any pitch.

The Foundation department contains the Diaphone [a Hope-Jones invention somewhat similar to a diapason], the Tibias, and two or three Diapasons. The Strings department contains a couple of mild and robust Gambas, two or three very keen viol d'orchestres [sic], a Quintaton Flute for furnishing the deep body tone often heard in strings, a Vox Humana Celeste, and perhaps my new Vox Viola--in fact any stops that go to make up a thrilling mass of "live" string tone. [The "Celeste" effect which presumes to imitate the voices of angels, is obtained by engaging two ranks of pipes, one rank tuned slightly sharp, to create a bright tremulant--as with tubular chimes, finger cymbals, etc. The stop has nothing to do with the percussion instrument of the same name; nor is it a Hope-Jones innovation. Its inclusion here among the string pipes is mysterious.]

The Wood Wind department contains the Oboe, Orchestral Oboe, Clarinet, Cor Anglais, Kinura, Concert Flutes, etc.

The Brass department contains the Trombones, Trumpets, and Tubas.

The Percussion department embraces the Tympani, Drums, Triangle, Glockenspeil [sic], Chimes, etc.[18]

Later model theatre organs would include other percussion such as xylophone, marimba, and carillon.

One must understand that, with the exception of the percussion, which was composed of actual instruments controlled by pneumatic actions, all of these sounds were produced by pipes and that, as with all organs before and after Hope-Jones, few of the sounds resembled those of the instruments for which they were named. This point bears particular significance to the subject at hand, for among the percussion stops of later theatre organs was the "harp."[19] One may be tempted to believe that this grouping was inspired by the positioning of the harps and percussion in the human orchestra, but in fact previous Romantic organs had featured harp stops which, like the other "strings," were voiced by pipes. This new harp was, of course, no more a stringed instrument than were the "mild and robust Gambas"; its placement in the percussion section was justified, however, because it was a type of huge glockenspiel. (George Audsley mentions the traditional *harfenprincipal* stop, consisting of manual labial, eight-foot pipes, cylindrical and small-scale. Its delicate tones in quick arpeggio passages "bear a faint resemblance to those of the orchestral Harp." The term is practically obsolete, as are both the name and the stop *harfenregal*, a soft-toned reed stop which "bore a remote likeness to the twang of a Harp when roughly plucked."[20])

It has been suggested that an ancient form of harp was itself not a

stringed instrument but a bar percussion. This could stem from a confusion of the harp with the medieval dulcimer, the strings of which were struck. (Indeed the dulcimer itself is often referred to as a psaltery, a similar instrument the strings of which were plucked.) The lyre-shaped arrangement of the dulcimer strings may have influenced the layout of the early xylophone *(Strohfiedel,* Ger.), with its single row of bars, and in turn that of the *lyra-glockenspiel* of the German military band. The earliest bar percussion to be patterned directly after the stringed lyre, the lyra-glockenspiel is, of course, the predecessor of the modern bell lyra. Although it has been called a bar harp, its appearance is strictly that of a bar *lyre.*[21]

So it is seen that the connection of the word "harp" in the history of the vibraphone exists only with the name of an organ stop.

During the early 1900s, the steel-bar Organ Harp-Celeste was one of the custom products of J. C. Deagan, Inc., Chicago. By the time promotional literature was printed between 1920 and 1922, the attachment had become standard equipment for a number of well-known organ builders. Sometime between 1921 and 1927, wooden "paddle vibrators," similar to Winterhoff's disc pulsators except that they operated between the bars and the resonators instead of inside the tops of the resonators, were added to the Harp-Celeste, producing the "Vibrato Harp." This was the work of Henry Schluter (1889-1971), the famous Chief Tuner who was responsible for many of Deagan's greatest successes. The word "Harp" appears only because in order to play either of these instruments it was necessary to engage the harp stop on the organ.[22]

The Organ Vibrato Harp consisted of a frame, motor, and two rows of pin-fixed bars which, when the attachment was mounted, hung vertically. Since the operation was mechanical and the player did not see the instrument, the bars, 2-1/4 inches to 1-1/2 inches wide, were not arranged according to the piano keyboard; rather, each row was a series of whole-steps: In C, each octave on the lower row included the notes, C, D, E, F#, G#, and A#; eacn octave on the upper row, then, C#, D#, F, G, A, and B. Eight models were available, with ranges of three, four, or five octaves (C^4 to C^7, F^3 to F^6, C^3 to C^7, and C^3 to C^8). Since the performer had no physical contact with the bars, a system of automatic dampers was necessary in order to obtain a clearly defined sound; these were not furnished by Deagan but were available from the organ builder. The pulsators could be stopped in a vertical position to maximize resonator efficiency through the use of an automatic pulsator check, a device which appeared later on the Deagan 147 vibe (1933) but was discontinued because it was too complicated for practical use.[23] Illustrations and further details appear in Meyer, pages 6-7 and 16-17.

The new Organ Vibrato Harp shared with another Deagan instrument, the Song Bells, an important option: a choice of either steel or aluminum bars. Schulter's experiments with half-inch thick aluminum

bars produced the model 101 aluminum-bar Song Bells (2-1/2 octaves, F^4 to C^7) about 1921. (A Deagan catalog of 1921, expiring about 1923, shows this instrument as well as the Model 100 (2-1/2 octaves, G^4 to C^7) and the Model 102 (three octaves, C^4 to C^7), with steel bars, approximately three-sixteenths of an inch thick, as were those of the steel-bar version of the Organ Vibrato Harp.) The results of these experiments showed that the aluminum tone was mellower and that it tended less to emphasize octave partials.[24] These represent precursive discoveries, and to illustrate their importance to the development of the vibraphone it is necessary to glance at the contemporary situation of another rapidly-expanding industry: radio.

The first commercially licensed radio station, KDKA, began broadcasting from the roof of the Westinghouse factory in Pittsburgh on 2 November 1920.[25] Shortly thereafter, stations began to appear thoughout the United States. One of these was WBBM (We Broadcast Better Music), a small concern in Lincoln, Illinois; it was established on 13 November 1923 by the brothers H. Leslie and Ralph Atlass and was moved to Chicago in the latter part of 1924. (It is now the CBS outlet in Chicago.)[26] With the great success of Signor Friscoe's recording of "Aloha Oe" about 1924, interest in the new Leedy Vibraphone was high. M. L. Jones, then Sales Manager at Deagan, was intrigued by this sound, and sometime in 1926 he asked Henry Schluter to design an instrument which would produce a similar sound. A fundamental problem of the Vibraphone, however, was the fact that closely positioned studio microphones accentuated the untuned octave partials which were readily noticeable with the steel bars. (The condition was particularly objectionable in the low register, where the 2-1/4 inch width greatly increased the volume of the cloudy "side tone" partial, oscillating horizontally, or perpendicularly to the axis of the bar.) The inventive Schluter, who had recently introduced his famous octave and quint-tuning methods for xylophones, and who was particularly well pleased with the sound of his aluminum-bar 101 Song Bells, granted Jones's wish in the form of a neat synthesis of components: Using aluminum bars, as on the Song Bells and Organ Vibrato Harp (here cord-suspended, three octaves, F^3 to F^6, two inches in the low register--reduced width to suppress the side tone--to 1-1/2 in the high and one-half of an inch thick); a damper, as on the Organ Vibrato Harp (here transformed logically into a pedal-operated felt strip); and revolving-disc pulsators, located in the resonator tops, as on the Leedy Vibraphone, he assembled the "Vibra-Harp." This new instrument may not have been given its model number 145 when in April 1927 a Vibra-Harp was presented (probably by M. L. Jones) to WBBM for a broadcasting demonstration, but one point is certain: Its dark, mysterious tone, refined harmonic intonation, and, perhaps most significant, addition of a damper pedal to achieve maximum control over phrasing and expression far surpassed the capabilities of the Leedy Vibraphone. The Vibra-Harp was officially

introduced during the same month, although the earliest known promotional literature, a small three-panel folder, did not appear until October 1928. The delay between the start of production and an active selling campaign is explained by a reasonable amount of uncertainty surrounding the future of the instrument. It may be said that by the middle of 1928 there was sufficient reason to believe that Schluter's creation would return profits. In 1929 the Vibra-Harp sold for $350, one hundred dollars more than the price of a Leedy Vibraphone about five years earlier.[27] For illustrations and specifications, see Meyer, pages 7-11.

Nomenclature

Since the Deagan 145 Vibra-Harp was the model for all future instruments referred to (with varying degrees of accuracy) as vibraharps, vibraphones, vibrabells, vibes, vibeses, harpaphones, and harpophones, it is fitting that the writer should devote some more attention to the minor dispute over nomenclature and offer some sort of justification for his own choice of terminology.

It is first necessary to dispense with the last connection of the instrument with the organ industry. The Organ Vibrato Harp was still a custom item by the time the Vibra-Harp was introduced. (The previous Harp-Celeste had gone into production between 1920 and 1922.) When the first Vibrato Harp literature appeared in July 1931, the attachment had taken on the same name as its mallet-played counterpart: "Vibra-Harp." This has confused some persons, including Meyer, who states (p. 6) that between 1921 and 1927 Deagan combined the Harp-Celeste and the Vibra-Harp (harp stop with tremolo) to produce the Organ Vibra-Harp. Meyer refers here, of course, to the adaptation of the Harp-Celeste to produce the Vibrato Harp. It should be made clear that by the time the *name* "Vibra-Harp" was applied to the Vibrato Harp the mallet Vibra-Harp was already four years into production. Trommer says, "The confusion in names is less significant when you know that the organ trade and the professional musician trade were widely separated entities."[28]

When the 145 was introduced, Leedy abandoned its original design. When subsequently the new Leedy model was presented, it had assumed the essential features of the Vibra-Harp: thick aluminum bars and a damper pedal. But the name "Vibraphone" was retained and was trademarked on 1 November 1927. By about 1932, Deagan had dropped the hyphen in its literature and had simplified its own name to "Vibraharp." (This is in spite of the fact that the trademark on the name "Vibra-Harp," registered in 1930, would have lasted until 1950. Actually, neither the trademark on "Vibra-phone" nor that on "Vibra-Harp" was renewed, and U.S. Patent Office records show that "Vibraharp" was never registered. Leedy promotional material is incorrect when it proposes that Mr. Leedy's failure to patent the early Vibraphone left his firm

open to imitation: First of all, instruments as entities in themselves--as opposed to principles or designs--cannot be patented. Second, the Vibra-Harp borrowed from the Vibraphone only a similar motor-driven pulsator shaft, which had developed independently in another form on the Organ Vibrato Harp. And third, both Leedy and Deagan were careful to patent everything *patentable* on their instruments, but these patents referred only to components and methods: frame, pedal, pull-rod, and damper designs; tuning; and so on.) Thus every bar percussion instrument to appear since 1927 fitted with thick aluminum bars, pulsators, and a damper pedal is a copy of the Vibra-Harp; to quote Wechter, "no manufacturer anywhere today produces an instrument even remotely similar to Leedy's Vibraphone."[29] So then one must conclude that the proper nomenclature is "vibraharp." And yet the number of people who actually use that term on a regular basis is restricted to employees of J. C. Deagan, Inc., and a few "purists" who are apparently unaware of the background of the instrument. Everyone else calls it a "vibraphone."

One must remember that eleven years had intervened since the introduction of Winterhoff's first motorized Steel Marimbaphone, six years since the first Steel Marimbaphone with revolving-disc pulsators (which later became known as the Vibraphone), and at least three, possibly five, since the application of the name "Vibraphone" by the time Schluter's Vibra-Harp made its appearance. During that interim the Leedy instrument had grown into use and had reached Europe, even before the name "Vibra-phone" appeared in promotional literature. (Allen Fry states that Paul Sprecht used one in a dance band at the Empress Ballroom, Hammersmith, London, in 1923 or 1924, and Delecluse cites appearances in Europe as early as 1921 or 1922.[30]) Thus today in Europe the instrument, technically a "vibraharp," is known almost exclusively as a "vibraphone."

Furthermore, the Vibra-Harp was basically a refined (albeit vastly refined) version of the Vibraphone. It was Winterhoff's motorization of a Steel Marimbaphone which attracted widespread attention to such an instrument; it was the disc-pulsator Steel Marimbaphone which landed the hit tune for Signor Friscoe and captured the recording and radio industries (as well as the ear of M. L. Jones); and it was Winterhoff's instrument which came to be known as a Vibraphone. Schluter's contribution was the replacement with octave-tuned aluminum of the steel bars and the addition of the damper pedal. The significance of these improvements, namely the fact that the original Vibraphone was discontinued in favor of Schluter's design, cannot erase the fact that the Vibra-Harp was produced as a result of interest in the Vibraphone.

Since both terms, "vibraphone" and "vibraharp," are generic versions of trade names, and since it may be argued that in terms of technical innovations the Vibra-Harp was as new an instrument as was the Vibraphone, the reader may conclude that the perplexity has turned full

circle and that it does not make any difference what the instrument is called. Needless to say, the reader would be correct. Both terms are familiar to most musicians, and in any event the layman still calls it a "xylophone."

The writer wishes, however, to make a small case supporting his own general use of the word "vibraphone." First of all, it describes the instrument, a bar percussion with built-in "vibrato," without describing any other instrument. It has been shown that the vibraharp has nothing to do with harps of any kind except in the minds of those who design theatre organs. Naturally, it continues to be necessary to explain to many persons that the vibraharp is not a stringed instrument (or that the organ does not substitute for an orchestra). Secondly, the term fits in with other words commonly associated with percussion: "xylophone," "marimbaphone," "idiophone," "membranophone," "metallophone," "lithophone," and so on. (Of course terms such as "chordophone," "aerophone," "Sousaphone," and "Saxophone" are used, but they are certainly not likely to be confused with percussion instruments--less likely so than is "vibraharp" to be confused with strings.) And finally, there is the obvious fact that the word "vibraphone" is already used far more widely than "vibraharp," and it is the custom of society to develop a language from words which make their way into popular favor.

It should be pointed out that some authors, including Meyer, have suggested the exclusive use of the term "vibes" (singular and plural) to describe all instruments resembling the vibraphone. The writer mildly objects to this for two reasons: (1) Since indeed it does not describe all instruments resembling the vibraphone, its use for that purpose would only add to the confusion--this acknowledges the fact that the majority of persons who use the term "vibes" do so in reference to the modern vibraphone and that these persons are not likely to be aware of its history; and (2) it is an abbreviation which grew out of the unilateral association of the instrument with jazz and popular music, and this, combined with other connotations of the word, may for some individuals contribute superficially to a failure of the medium to be taken seriously. This may be considered to be extreme in most instances, but it is representative of an unfortunate situation which seems peculiar to percussion in general, especially with regard to the ludicrous titles which many composers give to their percussion compositions, and to the fact that percussionists, because of their association *ipso facto* with popular music, are given license to perform insubstantial variety-show entertainment on recital programs of allegedly serious music--a practice which would never be tolerated with any other performing medium.

Before leaving this topic, the writer wishes to insert an observation which seems to summarize rather effectively the humorous nature of the vibraphone-vibraharp duality. In the 1974-75 *Wage Scale and Directory* of the D. C. Federation of Musicians, Local 161-710 (a group

of individuals who might be expected to know something about musical terminology), the vibraharp and the vibraphone are listed as two different instruments. According to this distinction, there are presently in the nation's capital three vibraharpists and thirty-nine vibraphonists.[31] Union officials report that the listings are drawn up according to the manner in which the players register and that the differentiation must be an error. In a telephone conversation with the writer on 1 March 1976, John A. C. Kane, one of the vibraharpists (who, ironically, plays an old Leedy Vibraphone), echoed the officials' conclusion.

The nomenclature issue, which, again, is relatively unimportant, is not likely to be resolved anytime in the near future. Deagan should not be expected to foresake its serviceable trade name, just as many drummers prefer their "sock cymbals" to "hi-hats." It will continue as one of the polemic curiosities which add interest to a field of endeavor and help to make its pursuit seem worthwhile.

Vibrato versus Tremolo

A similar and no less persistent semantic dilemma exists with regard to the term used to describe the effect of the vibraphone pulsator. Although there has always been considerable confusion among vocalists and instrument manufacturers as to definitions for the words *vibrato* and *tremolo,* it is now generally agreed among instrumental musicians that the former term refers to a slight and more or less rapid fluctuation of pitch and the latter to a quick reiteration of one pitch. Since the effect of the pulsator is the alternate opening and closing of the resonating chamber beneath a vibrating bar (the pitch of which is constant unless altered by the performer), thus interrupting the flow of sound waves from the bar to the resonator, it would seem that the proper name for this effect would be *tremolo.* Yet careful listening reveals an apparent drop in pitch to a note between a quarter tone and a semitone below the fundamental during the instant that the rotating valve closes the resonator.[32] Analysis using a stroboscopic tuner *seems* to confirm the pitch drop, though in actuality that device is incapable of measuring a tone of such drastic amplitude modulation, and further examination is necessary. Acting upon the suspicion that dissonant partials may prevail when the resonator is closed, one can discover the following: (1) Without a resonator the bar shows that its second mode of vibration (or second partial, approximating the fourth harmonic) does indeed have a greater relative amplitude than the fundamental; but that (2) the second mode of vibration exists at a tone two octaves above the fundamental and is therefore consonant; and that (3) the two audible partials of the vibraphone bar, the second and third modes of vibration (the latter approximating the tenth harmonic and existing at a tone about three octaves and a major third above the fundamental) are

prominent only in the low register (F^3 to C^4),[33] whereas the pitch drop can be observed at points throughout the range of the instrument. The problem then becomes a matter of whether this apparent vibrato is a physical reality or an aural illusion.

Thomas Rossing, Professor of Physics at Northern Illinois University and an authority on the acoustics of musical instruments, provides considerable illumination:

> . . .The Stroboconn measures *frequency;* the ear "measures" *pitch.* Pitch is determined mainly, but not exclusively, by frequency (in different registers, for example, tones appear to go "flat" or "sharp" as intensity increases). As I tell my students, the recipe for pitch contains 9 parts of frequency, one part of intensity, and a dash of timbre. The term *vibrato,* unfortunately, means many things to many people. Many physics teachers reserve the term for a frequency modulation (FM) which may or may not have an amplitude modulation (AM) associated with it. Few musicians, however, are this restrictive. Seashore's *Psychology of Music* defines vibrato as a "pulsation of pitch usually accompanied with synchronous pulsations of loudness and timbre".[34] In fact, many musicians talk about "intensity vibrato", "pitch vibrato" and even "timbre vibrato" (The latter made popular by the voltage-controlled filters on electronic synthesizers). *Tremolo* also is used to describe different effects. Sometimes it denotes an amplitude modulation or intensity vibrato; other times it means a "rapid repetition of one or more tones" or trill *(Golden Encyclopedia of Music,* p. 605). . . .
>
> . .We borrowed a Musser Vibraphone. . .and did some careful measurements. We found that the frequency change, if any, is *less than 1 cent* (1/100 semitone) as the. . .[resonators] open and close. What you see on the StroboConn [sic] or Strobo Tuner [sic] is a *phase modulation* that moves the dark shadow back and forth. You can achieve the identical effect, by moving the microphone toward and away from the bar, thus changing the phase. . . .
>
> To summarize, then, opening and closing the. . .[resonators] produces an amplitude (intensity) modulation and a phase modulation, but no measurable frequency modulation. Around A^3, where the dependence of pitch on intensity is greatest,. . .there could be some apparent change in pitch; it depends upon the distance of the listener from the instrument. Whether there is vibrato or tremolo or both, depends upon how you define these. . .terms.[35]

Rossing's reference to the dependence of low-register notes upon intensity for accurate representation of pitch is based upon the following phenomenon: When a pure tone, C^4 or middle C, for example, having a frequency of 261 cycles per second (cps), is increased in loudness from 40 decibels (db) to various levels there is a considerable pitch drop immediately preceding the point of maximum loudness: At 60 db, there is a drop of about 4.3 cps; at 70 db, about 6.5 cps; at 80 db, about 8.3 cps; and at 100 db, about 10 cps. A more practical expression may be

offered: If a pure C^4 is increased in loudness from 40 to 80 db, its pitch is lowered 0.11 octave, 1.3 semitones, or 8% change in frequency.[36]

So it may be said that the rotation of the vibraphone pulsator produces *apparent* frequency modulations and *real* amplitude modulations, or both vibrato and tremolo--though neither term can be used to describe the whole effect. That there was never a Leedy Tremophone or a Deagan Tremolo Harp is explained in that there was simply less of a trend towards semantic precision (especially among instrument manufacturers) during the 1920s than is seen today; furthermore, the already confused definition of *vibrato* had led many persons to refer to it as a general vibration of sound, whether involving pitch or intensity--recall Henry Schluter's "paddle vibrators," which indeed inspired the name "Vibrato Harp," apparently independent of George Way's "Vibraphone."[37]

Other Early Manufacturing Developments

Grover Jenkins founded the Jenco company in Decatur, Illinois in 1919. When the firm began manufacturing vibraphones, the trade name "Vibrabells" was used. Later the name was discontinued, and today the Jenco instrument is referred to as a "Vibraphone."

There are many references to the harpaphone (or harpophone) as a vibraphone without pulsators. This description is incorrect: The instrument was a resonated glockenspiel, orginally with the customary steel bars, sounding one octave below the regular glockenspiel; that is, written G^4 to C^7. It may have derived its name, as did the Deagan Vibra-Harp, from an organ attachment. Charles Botterill, former employee of the Premier Drum Company, London, and one of Britain's leading percussionists, writes this in his letter to the writer of 24 May 1976:

> . . .The instrument was a resonated large Glock--one octave lower in pitch. The bars were 1-1/2" steel and it had a compass like the glockenspiel. I did once have one made by Leedy. This was the portable model; the resonators were bent at right angles as the case was the same as the regular glock. Both Premier and of course Leedy made one on wheels--I think it was Leedy who first made one and it may have been invented by the late George Way. . . .Premier made one with [aluminum] alloy bars around late 1928 or 9. . . .A small 2-1/2 oct vibes [probably the first Premier vibraphone] was put on the market in place of the harpaphone. . . .[38]

It is easy to see how the introduction of an aluminum-bar harpaphone by Premier could have caused many persons to confuse this instrument with the vibraphone, despite the dissimilarity of ranges. (Surely it is the harpaphone to which Meyer refers on pp. 12-13 when she says that during 1928 Premier attached pulsators to a "vibes" and replaced the steel bars with aluminum alloy in the summer of 1929.)

Blades mentions another instrument (probably British) which lost

place to the vibraphone, the aluminophone: "a metallophone with bars of aluminum formerly used during recording sessions in place of the more resounding xylophone."[39] In his letter to the writer of 27 April 1976, Blades further describes the instrument as "A type of glockenspiel (3 octs C-C) with bars of aluminum. It was not greatly used."[40]

Among the now-extinct Deagan novelty instruments which Blades discusses, the Aluminum Harp is described as a series of aluminum tubes played with resined gloves. A tremolo effect was obtained by moving a finger over the upper end of a tube, and Blades conjectures that "here could have been the inspiration for the vibraphone."[41] The catalog containing the Aluminum Harp expired not later than 1918, and the Aluminum Harp itself may have been discontinued even earlier.[42] Furthermore, Winterhoff's initial method of obtaining the tremolo (1916) involved moving the entire set of resonators towards and away from the bars; it was not until 1921 that he decided upon revolving discs to open and close the resonators. It is difficult to imagine any causative relationship between the two instruments.

Several English sources refer to clockwork vibraphone motors, although a published description does not seem to exist. Blades offers the following:

> The clockwork motors used on British vibraphones (early of course) were Garrard gramophone motors. They ran for 3 to 4 minutes--silently, and with the advantage of being "switched on" during a take and the speed adjusted whilst [the] motor was running. . . .I still use a clockwork motor on my lecture vibe (fitted to a Deagan). . . .[43]

[1]Jacqueline Ann Meyer, "The History and Development of the Vibes" (M.A. thesis, Terre Haute: Indiana State University, 1973).

[2]Photocopies of "The History and Development of the Vibes" may be obtained at current library rates (pp. 42 + v) by contacting Ms. Meyer c/o the Percussive Arts Society, 130 Carol Drive, Terre Haute, Indiana 47805. (pp. 3-18) of the work are reproduced and published under the title "Early History and Development of the Vibes" in *Percussionist* 13 (Winter 1976): 38-47.

[3]James Blades, *Percussion Instruments and Their History*, 2d ed. (London: Faber and Faber Limited, 1975), pp. 100-101; Jacques Delecluse, *Methode Complete de Vibraphone* (Paris: Alphonse Leduc, 1963), p. 1.

[4]Blades, pp. 101-102; Elie Siegmeister, ed., *The New Music-Lover's Handbook* (Irvington-on-Hudson, New York: Harvey House, Inc., Publishers, 1973), p. 342.

[5]Blades, p. 102.

[6]Ibid.

[7]Delecluse, p. 1.

[8]Blades, pp. 146-147.

[9]This feature is typical of the short-lived vaudeville novelties which bar percussion manufacturers would introduce from time to time. As a point of perspective, it should be noted that some very recent works require that the performer use a bow on a modern vibraphone. For these passages it is suggested that a string bass bow (or, in some cases, a cello bow) be used, since a violin or viola bow will not produce sufficient volume.

[10]Interview with Hal Trommer, Sales Manager, J. C. Deagan, Inc., Chicago, 3 April 1976; Meyer, pp. 3-4; Blades, p. 408.

[11]Leedy Manfacturing Company, "Leedy Made the First Vibraphone," *Leedy Drum Topics* (Indianapolis: Leedy Manufacturing Company, n.d.), p. 6 (photocopy provided by Clyde Sanders, GWH Co., Inc., Elkhart); Meyer, p. 4. The trade name "Vibratone" is now used by Fender, a division of CBS Musical Instruments, Fullerton, California, to identify a Leslie rotating-speaker cabinet.

[12]Leedy, p. 6.

[13]Blades, pp. 408-409; Julius Wechter, *Play Vibes* (New York: Henry Adler, Inc., 1962), pp. 3-4; Meyer, pp. 4-5. Blades notes interestingly that the pulsator was later applied to the saxophone by F. S. Brasor (U. S. Patent 1,554,782;) see p. 409.

[14]Clair Omar Musser to the writer, 5 March 1977.

[15]Trommer interview; Leedy, p. 6; Wechter, pp. 3-4.

[16]Hal Trommer to the writer, 11 November 1976.

[17]Robert Hope-Jones, *Recent Developments in Organ Building* (North Tonawanda, New York: The Rudolph Wurlitzer Co., 1910), p. 13, quoted in Orpha Ochse, *The History of the Organ in the United States* (Bloomington: Indiana University Press, 1975), p. 337.

[18]Robert Hope-Jones, lecture for National Association of Organists, 1910, quoted in Ochse, p. 336.

[19]Ochse, pp. 336-356.

[20]George Ashdown Audsley, *The Art of Organ Building*, 2 vols. (New York: Dodd, Mead, & Co., 1905; reprint ed., New York: Dover Publications, 1965), 1:588.

[21]Trommer interview: Hal Trommer to the writer, 1 May 1976; Blades, pp. 200-203, p. 296, p. 308.

[22]Trommer interview; Trommer to writer, 1 May 1976; J. C. Deagan, Inc., "Deagan Organ Harp-Celeste," Deagan *Catalog* (Chicago: J. C. Deagan, Inc., [1920-22], pp. 25-27 (photocopy provided by Hal Trommer); Meyer, pp. 6-7; Wechter, pp. 3-4.

[23]Trommer interview; Trommer to writer, 1 May 1976.

[24]Trommer interview; Meyer, p. 7; Wechter, p. 4.

[25]Sydney W. Head, *Broadcasting in America: A Survey of Television and Radio* (New York: Houghton Mifflin Company, 1972), pp. 133-137; Trommer interview; Hal Trommer to the writer, 4 May 1976. There is some dispute as to whether WWJ Detroit or the station at the University of Wisconsin may have commenced commercial broadcasting before KDKA. The licensing requirement was established in 1932.

[26]Trommer interview; Trommer to writer, 4 May 1976.

[27]Trommer interview; J. C. Deagan, Inc., "The New Deagan Vibra-Harp" (promotional flier, Chicago: J. C. Deagan, Inc., 1929); Leedy Manufacturing Company, "The Vibraphone" (promotional folder, Indianapolis: Leedy Manufacturing Company, 1924 or 1925 [date inscribed by George Way, 1960]) (photocopies provided by Hal Trommer).

[28] Trommer to writer, 1 May 1976.

[29]Wechter, p. 4; trade mark records, U.S. Patent Office, Arlington, Virginia; Leedy, p. 6; Hal Trommer to the writer, 17 April 1976.

[30]*Grove's Dictionary of Music and Musicians*, 5th ed., s.v. "Vibraphone," by Allen Fry; Delecluse, p. 1.

[31]D. C. Federation of Musicians, Local 161-710 of the American Federation of Musicians, *Wage Scale and Directory*, 1974-75 ed. (Washington, D.C.: D.C. Federation of Musicians), p. 115.

[32]Reginald Smith Brindle is among the very few percussion scholars who have mentioned this phenomenon; see *Contemporary Percussion* (London: Oxford University Press, 1970), p. 46.

[33]James Loyal Moore, "Acoustics of Bar Percussion Instruments" (Ph.D. dissertation, Columbus: Ohio State University, 1970), pp. 11-22.

[34]Carl E. Seashore, *Psychology of Music* (New York: McGraw-Hill Book Company, Inc., 1938; reprint ed., New York: Dover Publications, Inc., 1967), p. 33.

[35]Thomas D. Rossing, Professor of Physics, Northern Illinois University, DeKalb, to Hal Trommer, 21, May 1976.
[36]Ibid.
[37]Trommer interview.
[38]Charles Botterill, former employee, Premier Drum Company, London, to the writer, 24 May 1976.
[39]Blades, p. 399.
[40]James Blades to the writer, 27 April 1976.
[41]Blades, p. 477.
[42]Trommer interview.
[43]Blades to writer, 27 April 1976.

To Be Continued

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ABOUT ELEMENTARY PERCUSSION EDUCATION
By James Richard Bauer

Although there is not much material written specifically about elementary percussion method books, there are various articles from periodicals, percussion teacher texts, and a few doctoral dissertations discussing the subject.

Elementary Percussion Education

The Percussive Arts Society has shown considerable interest in elementary percussion education, forming a "Committee on Improving Elementary Percussion Education" in 1966. This committee published its preliminary report in the second and third issues of the 1966 *Percussionist*, an official publication of the Percussive Arts Society. In stating its aims, the committee emphasizes that percussion education is a means toward the goal of "evolving a sense of musical responsibility or musicality in people and it should make them aware of music's place in a total world culture."[1]

Various problems are cited, including the fact that many music educators aren't enough aware of the possibility of percussion as a medium of musical expression. It also includes one particularly important statement: "There is little awareness of the necessity for total percussion instruction: i.e., snare drum, mallet keyboard instruments, timpani, tambourine, triangle, etc."[2] This is seen to be at least partly due to the great shortage of mallet keyboard teachers.

In his "Report of the Committee on Improving Elementary Percussion Education of the Percussive Arts Society," Schinstine states the committee's recognition of the need for more quality literature in all areas, but in particular for keyboard percussion instruments and in better basic method books for all percussion instruments.[3]

In order to achieve an emphasis on total percussion performance, some authors feel that mallet percussion instruction should precede all other percussion instruction. Baldwin states:

> Many comments and quotes of leading authorities in the percussion field, both professional and educational, are presented in an effort to further validate the mallets--before membranes approach which is being used successfully in some public schools today.[4]

Other authors recommend that keyboard percussion and snare drum studies be undertaken simultaneously. Keezer recommends using the Belwin *First Division* Method Book for such an approach.[5]

Still other pedagogical recommendations range from requiring all beginning percussionists to study piano concurrently,[6] to the transfer of Orff techniques from music to elementary percussion instruction.[7] There are several more approaches voiced, each with slight differences, but they all agree on the need for total percussion instruction in today's schools.

Mueller expresses his awareness of the need for teaching total percussion: "The time has come to give percussion students the same complete musical training given to other members of our school musical organizations."[8] He further states:

> Percussion students not trained in the total percussion often do not think of the percussion as musical instruments. As a result, they lack a musical approach to performance. These students fail to understand the musicianship required to play the percussion correctly because they are specializing on only one percussion instrument.[9]

Peters adds:

> It is too often falsely assumed by teachers, music directors, and ultimately by the students that mastering basic snare drum strokes and techniques is an open sesame to playing the timpani, the mallet-keyboard instruments, and the bass drum, cymbals, triangle, tambourine, etc.[10]

Galm states:

> Contemporary composers have changed the concept of percussion playing from a collection of individual techniques for specific instruments to a PERCUSSION INSTRUMENT which is played with the same technique, differing in degree, rather than kind. . .What this implies for the teacher and student of percussion instruments is that an approach must be developed to not only teach those techniques which are necessary for the individual instruments but also to develop a concept of comprehensive percussion performance.[11]

Other concepts contained in Galm's philosophy include exposing beginning percussion players to as many aspects of percussion playing

as possible, adapting the study of the single stroke roll and multiple bounce roll to different percussion instruments, and developing the students' recognition of transfer elements common in various percussion instruments.[12]

Elementary Percussion Education - Emphasis on Snare Drum

The need for improvement of elementary percussion teaching methods is recognized by another group of periodical articles and doctoral dissertations. These authorities, however, have concentrated on improving the teaching of snare drum performance abilities of beginning percussionists. Olson points out that "many drum methods concentrate on exercises for the development of snare drum technique, while neglecting the student's needs for an aesthetically satisfying musical experience."[13]

Cleino illustrates the over-concentration of technique and neglect of musical aesthetics found in many percussion method books. He found that only four of the twenty-six rudiments (other than rolls) were present in more than fifteen percent of the three hundred scores that he analyzed.[14] He also concluded that:

> The need is for teaching materials of more musical value for younger students. It is not the development of the group, but the challenge to develop every student within the group, which is being felt by modern music educators. The future of instrumental music education in America may be determined by the manner in which music educators meet this challenge.[15]

In a similar vein, Jackson notes that: "Present training programs, whether oriented to private study or to heterogeneous band class, fail to produce drummers who possess the technical proficiency and musical sensitivity exhibited by other members of the band."[16]

Pearl's approach prescribes the teaching of snare drum to beginning percussionists for one full year, concentrating on hand positions, sticking patterns, reading fundamentals, and finally (after reading ability is firmly established), rudiments. The following years are to be devoted to performance on the percussion accessories, ensemble and solo work and finally, mallet percussion instruction.[17]

Percussion Education in General

There is a relatively significant amount of literature written about percussion education in general; however, only a portion of it applies to this particular study. Lefever expresses the opinion that more articles about different approaches to percussion performance need to be written by more percussion authorities. She states:

> Practically any existing method can be used successfully by the well-trained percussionist, but relatively few of these

methods can be used with complete understanding by the average band director.[18]

Cirone, a prominent contemporary composer of percussion solo and ensemble literature, feels that the school instrumental music teachers lack knowledge about percussion because of the lack of available published percussion teaching material. He also states:

> Since most of the method books require the students to play rudimentally, the students think this is the only way it should be done, and generally nothing is said to contradict this idea.[19]

Spohn and Tatgenhorst recognize this problem also and offer their approach to solving it:

> It is not difficult to strike a percussion instrument and get a sound. The real task, however, is to create a musical sound. This can be achieved only if the music program is designed to guide students toward an awareness of a performance level by contributing to their over-all music education as well as increasing their technical proficiency.[20]

Feldstein, another prominent contemporary percussion composer and educator, summarizes the current situation in the instrumental music of today's schools:

> The student who studies only 'drums' until his sophomore year in high school, and then if he shows promise, is given the opportunity to experiment with the other percussion instruments, is gradually disappearing.[21]

One may conclude that there has been a substantial amount of concern over the state of percussion education in recent years. Many deficiencies of today's public school percussionists have been pointed out, and much of the blame for them appears to be aimed at the failure of percussion teachers and students to approach percussion instruments musically. A significant number of percussion authorities have offered the total percussion approach as a solution.

[1]Percussive Arts Society, "Committee on Improving Elementary Percussion Education," *Percussionist*, 3 (1966), p. 44.

[2]Percussive Arts Society, p. 45.

[3]William J. Schinstine, "Report of the Committee on Improving Elementary Percussion Education for the Percussive Arts Society," *Percussionist*, 7 (1969), p. 65.

[4]John Baldwin, "Proposals for Beginning Percussion Instruction," *Percussionist*, 10 (1973), p. 135.

[5]Ronald Keezer, "Experiments in Elementary Percussion," *Music Journal*, 29 (Jan. 1971), p. 34.

[6]Stanley, p. 66.

[7]Don Gilbert, "Changing Concepts in Percussion," *Instrumentalist*, 23 (May 1969), p. 64.

[8]Kenneth Mueller, *Teaching Total Percussion* (West Nyack, N.Y.: Parker Publishing Co., Inc., 1972), p. 9.

[9]Mueller, p. 20.

[10]Gordon Peters, "Our Responsibilities in Percussion," *Instrumentalist*, 18, (April 1964), p. 88.

[11]John K. Galm, *The Percussion Instrument: Some Ideas on Teaching and Performance* (University of Colorado: John K. Galm, 1970), p. 2.

[12]Galm, p. 2.

[13]Rees Olson, "A Beginning Percussion Class," *Instrumentalist*, 23 (Sept. 1968), p. 89.

[14]Henry Cleino, "An Ensemble Method for Teaching Percussion Instruments," *Dissertation Abstracts International*, 19 (1959), p. 2967.

[15]Henry Cleino, "An Ensemble Method for Teaching Percussion Instruments," (Unpublished PhD dissertation, George Peabody College, 1959), p. 45.

[16]Harold J. Jackson, "An Instruction Method for Individual or Group Development of Snare Drummers," *Dissertation Abstracts International*, 29 (1968), p. 1242.

[17]Jesse Pearl, "The Beginning Percussion Class," *Instrumentalist*, 21 (Oct. 1966), p. 74.

[18]Maxine Lefever, "Improving the Percussion Section," *Instrumentalist*, 15 (Feb. 1962), p. 50.

[19]Anthony Cirone, "School Directors and Their Percussion Sections," *Instrumentalist*, 23 (June 1969), p. 80.

[20]Charles Spohn and John Tatgenhorst, *The Percussion* (Boston: Allyn & Bacon, Inc., 1971), p. 9.

[21]Saul Feldstein, "Multiple Percussion Playing," *Instrumentalist*, 23 (Oct. 1968), p. 68.

COMMERCIALLY AVAILABLE EXCERPTS FOR KETTLEDRUMS

Compiled by David W. Vincent
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Abbreviations

A1 - Alan Abel, *Twentieth Century Orchestra Studies for Timpani*, New York: G. Schirmer, Inc., 1970.
CG - Carl Gardner, *The Gardner Modern Method for Timpani*, New York: Carl Fischer, Inc., 1944.
JL - Joseph Leavitt, *The Rhythms of Contemporary Music*, New York: Henry Adler, Inc., 1963.
K - Edwin F. Kalmus, P.O. Box 1007, Opa-Locka, Florida 33054 (Parts available separately or in folios).
MG1 - Morris Goldenberg, *Modern School for Snare Drum*, New York: Chappell & Co., Inc., 1955.
MG2 - Morris Goldenberg, *Classic Overtures for Timpani*, New York: Chappell & Co., Inc., 1961.
MG3 - Morris Goldenberg, *Classic Symphonies for Timpani*, New York: Chappell & Co., Inc., 1963.
MG4 - Morris Goldenberg, *Standard Concertos for Timpani*, New York: Chappell & Co., Inc., 1969.
SG - Saul Goodman, *Modern Method for Timpani*, Rockville Center, N.Y.: Belwin Mills, 1948.

* - Indicates complete part.

This list includes kettledrum excerpts only; where there are multiple entires, they are listed in order of preference.

Auber	*Masaniello Overture* CG-83 *
Bach/Mitropoulos	*Fugue in c Minor* SG-128
Barber	*Medea's Meditation and Dance of Vengeance* A1-1
	Piano Concerto A1-2
	Second Essay for Orchestra A1-5*
	Stopwatch and an Ordinance Map SG-127 *
	Toccata Festiva A1-8
Bartok	*First Orchestra Suite* K *
	Portraits, Op. 5 k *
	Sonata for Two Pianos and Percussion MG1-157 (contains none of the hardest parts)
Beethoven	*Coriolan Overture* MG2-3 *; K *
	Egmont Overture MG2-4*; K *
	Fidelio Overture K *
	Leonore Overture No. 1 K *
	Leonore Overture No. 2 K *
	Leonore Overture No. 3 MG2-6 *; K *
	Prometheus Overture MG2-8 *; K *
	Ruins of Athens Overture K *
	Piano Concerto No. 1 MG4-4*, K *
	Piano Concerto No. 2 K *

	Piano Concerto No. 3 K *
	Piano Concerto No. 4 K *
	Piano Concerto No. 5 K *
	Violin Concerto MG4-52 *; K *
	Triple Concerto K *
	Symphony No. 1 MG3-29 *; K *; CG-62 * (arr. Moses)
	Symphony No. 2 MG3-31 *; K *; CG-66 * (arr. Moses)
	Symphony No. 3 MG3-34 *; K *; CG-72 * (arr. Moses)
	Symphony No. 4 MG3-38 *; K *
	Symphony No. 5 MG3-42 *; SG-76 *; K *; CG-76 * (arr. Moses)
	Symphony No. 6 MG3-46 *
	Symphony No. 7 MG3-47 *; SG-80 *; K *
	Symphony No. 8 MG3-52 *; K *
	Symphony No. 9 MG3-57 *; SG-84 *; K *
	Wellington's Victory K *
Berlioz	*Beatrice and Benedict Overture* K *
	Benvenuto Cellini K *
	Corsair Overture K *
	King Lear Overture K *
	Nuits d'Ete Overture K *
	Roman Carnival Overture MG2-9 *; K *
	Symphonie Fantastique K *; SG-119 (end of movt. iii)
	Harold in Italy K *
	Marche Troyenne K *
	Royal Hunt and Tempest K *
	Three Pieces from the Damnation of Faust K *
	Cleopatra K *
	Judges of the Secret Court Overture K *
Bernstein	*Candide Overture* A1-8 *
	On the Waterfront A1-11
	The Age of Anxiety (Symphony No. 2) A1-12
Bizet	*Carmen Suite No. 1* K *
	Carmen Suite No. 2 K *
	Carmen Prelude K *
	Arlesienne Suite No. 1 K *
	Arlesienne Suite No. 2 K *
	Jeux d'enfants K *
Blacher	*Orchester Ornament* A1-12
	Variations on a Theme of Paganini A1-13
Bloch	*Schelomo* SG-123 (beginning to No. 30)
Borodin	*Symphony No. 2* K *
	On the Steppes of Central Asia K *
	Polovetzian Dances (Prince Igor) MG1-137 *; K *
	Prince Igor Overture K *
Brahms	*Academic Festival Overture* MG2-11 *; K *
	Tragic Overture K *
	Variations on a Theme of Haydn K *
	Hungarian Dances No. 1 3, 5, 6, 10 K *
	Violin Concerto MG4-54 *; K *
	Double Concerto K *
	Piano Concerto No. 1 MG4-6 *; K *
	Piano Concerto No. 2 MG4-10 *; K *
	Symphony No. 1 SG-93 *; K *
	Symphony No. 2 K *
	Symphony No. 3 K *

Bruckner	*Symphony No. 4* SG-98 *; K *
	Symphony No. 4 K *
	Symphony No. 7 K *
	Symphony No. 9 K *
Carter	*Variations for Orchestra* A1-14
Chabrier	*Espana Rhapsody* K *; CG-40 (arr. Safranek)
	Marche Joyeuse K *
	Danse Slav K *
	Habanera K *
	Suite Pastorale K *
Chausson	*Symphony* K *
Chavez	*Sinfonia India* A1-14
Chopin	*Piano Concerto No. 1* MG4-12 *; K *
	Piano Concerto No. 2 MG4-14 *; K *
	Polonaise, Op. 22 K *
Creston	*Invocation and Dance* A1-16
Delibes	*Coppelia Ballet Suite No. 1* K *
	Lakme: Airs de Danse (act 2, No. 8d) CG-52
	Sylvia Ballet K *
	Prelude and Mazurka K *
	Waltz de la Poupee K *
Dukas	*Sorcerer's Apprentice* K *
Dvorak	*Carnaval Overture* MG2-13 *; K *
	Slavic Dances K *
	Czech Suite K *
	Scherzo Capriccioso K *
	Romance, Op. 11 K *
	Cello Concerto K *
	Symphony No. 2 K *
	Symphony No. 4 K *
	Symphony No. 5 K *
Elgar	*Enigma Variations* K *
	Cockaigne Overture K *
Flotow	*Stradella Overture* CG-42 * (arr. Moses)
Franck	*Le Chasseur Maudit* K *
	Symphony in d K *
	Symphonic Variations K *
Glinka	*Russlan & Ludmilla Overture* K *
	Kamarinskaya K *
	Valse Fantasy K *
Gliere	*Russian Sailors' Dance* K *
Glazounov	*Violin Concerto* K *
Goldmark	*Rustic Wedding Symphony* K *
	Sakuntala K *
Gould	*American Salute* SG-130
Gounod	*Faust Ballet Music* K *
	Funeral March of a Marionette K *
Grieg	*Piano Concerto* MG4-16 *; K *
	Peer Gynt Suites No. 1, 2 K *
	Lyric Suite K *
	Norwegian Dances K *
	Symphonic Dance, Op. 64 K *
	Three Pieces from Sigurd Joselfar K *
Harris	*Symphony No. 3* A1-16
Hartmann	*Symphony No. 6* A1-18

Haydn	*Symphony No. 93* K *
	Symphony No. 94 (Surprise) MG3-4 *
	Symphony No. 95 K *
	Symphony No. 100 (Military) MG3-7 *; Cg-54 * (arr. Moses)
	Symphony No. 101 (Clock) MG3-10 *; SG-73 *
	Symphony No. 102 K *
	Symphony No. 103 K *
	Symphony No. 104 K *
Herold	*Zampa Overture* CG-44 * (arr. Moses)
Hindemith	*Concerto for Violin* SG-126 (movts. 1, 4 only)
	Symphonic Metamorphosis A1-22 (Scherzo only *)
Holst	*The Planets* A1-24 ("Jupiter" *, "Uranus")
d'Indy	*Symphony on a French Mountain Air* K *
Kabalevsky	*Colas Breugnon Overture* A1-28 *
	Piano Concerto No. 3 K *
	Comedians' Suite K *
Khatchaturian	*Masquerade Suite* K *
	Three Dances from Gayne Ballet K *
Lalo	*Symphony Espagnole* K *
	Cello Concerto K *
	Le Roi d'Ys Overture K *
Leoncavallo	*Pagliacci Prologue* K *
Liadow	*Eight Russian Folk Songs* K *
	Kikimora K *
	Enchanted Lake K *
Liszt	*Piano Concerto No. 1* MG4-17 *; K *
	Piano Concerto No. 2 MG4-19 *; K *
	Piano Concerto No. 3 K *
	Les Preludes MG2-15 *; K *
	Mazeppa K *; CG-50 (finale only, whole step lower)
	Tasso K *
	Hungarian Rhapsody No. 1 K *
	Faust Symphony K *
	Mephisto Waltz K *
	Fantasy on Hungarian Folk Themes K *
Luigini	*Ballet Egyptienne* K *
MacDowell	*Piano Concerto No. 2* MG4-21 *
Mahler	*Symphony No. 1* K *
	Symphony No. 2 K *
	Symphony No. 4 K *
	Symphony No. 5 K *
Mendelssohn	*Piano Concerto No. 1* MG4-24 *
	Piano Concerto No. 2 MG4-26 *
	Violin Concerto MG4-57 *
	Hebrides Overture (Fingal's Cave) MG2-17 *
	Midsummer Night's Dream Overture MG2-18 *
	Ruy Blas Overture MG2-20 *
	Symphony No. 1 K *
	Symphony No. 2 K *
	Symphony No. 3 K *
	Symphony No. 4 SG-90 *; K *; CG-69 * (arr. Moses)
	Symphony No. 5 K *
Meyerbeer	*The Prophet: Coronation March* CG-82 * Act 3, No. 12 CG-86 *
Moszkowski	*Spanish Dances* CG-35 (arr. Moses)
	Spanish Dances CG-36 (arr. Moses, revised Seredy)

Mozart	*Abduction from the Seraglio Overture* MG2-26 *
	Cosi fan Tutte Overture MG2-22 *
	Don Giovanni Overture MG2-23 *
	Magic Flute Overture MG2-24 *; CG-43 * (arr. Moses)
	Marriage of Figaro Overture MG2-25 *
	Piano Concerto No. 20 K *
	Piano Concerto No. 21 K *
	Piano Concerto No. 22 K *
	Piano Concerto No. 23 K *
	Piano Concerto No. 24 K *
	Piano Concerto No. 25 K *
	Symphony No. 31 MG3-13 *
	Symphony No. 34 MG3-16 *
	Symphony No. 35 MG3-19 *
	Symphony No. 36 MG3-21 *
	Symphony No. 38 MG3-23 *
	Symphony No. 39 MG3-25 *
	Symphony No. 40 CG-56 * (arr. Moses)
	Symphony No. 41 MG3-27 *; CG-64 * (arr. Moses)
Moussorgsky	*Night on Bald Mountain* K *
	Introduction to Khovanchina K *
	Persian Dances from Khovanchina K *
	Pictures at an Exhibition K *
Nielsen	*Symphony No. 4* A1-30
Orff	*Carmina Burana* A1-31
Paganini	*Violin Concerto* MG4-59 *
Piston	*Symphony No. 4* A1-36 (movt. 2 only *)
Prokofiev	*Piano Concerto No. 1* MG4-28 *; K *
	Piano Concerto No. 2 MG4-30 *
	Piano Concerto No. 3 K *
	Symphony No. 1 A1-38
	Symphony No. 5 K *
	Symphony No. 6 A1-39
	Symphony No. 7 K *
Rachmaninoff	*Piano Concerto No. 1* K *
	Piano Concerto No. 2 MG4-38 *; K *
	Piano Concerto No. 3 MG4-42 *; K *
	Symphony No. 2 K *
	Ilse of the Dead K *
Revueltas	*Sensemaya* A1-41; MG1-153 (each contains same excerpt MG1 has percussion parts also)
Rimsky-Korsakov	*Capriccio Espagnol* MG1-140 * (also has percussion parts); K *
	Russian Easter Overture K *
	Coq d'Or Suite K *
	Scheherezade K *
Rossini	*Barber of Seville Overture* MG2-32 *- K *
	Cenerentola Overture K *
	Gazza Ladra Overture MG2-30 *; K *; CG-46 *
	Scala di Seta Overture K *
	Semiramide Overture K *
	William Tell Overture MG2-27 *; K *; CG-46 *
Saint-Saens	*Piano Concerto No. 2* MG4-47 *; K *
	Piano Concerto No. 3 K *
	Violin Concerto No. 3 K *
	Danse Macabre K *; CG-39 * (arr. Moses)

	Introduction and Rondo Cappricioso K *
	Havanaise, Op. 83 K *
	Samson and Delilah: Bacchanale CG-51
	Symphony No. 3 K *
	Suite Algerienne K *
Schubert	*Rosamunde Overture* MG2-33 *; K *
	Symphony No. 1 K *
	Symphony No. 2 K *
	Symphony No. 3 K *
	Symphony No. 4 K *
	Symphony No. 5 K *
	Symphony No. 6 K *
	Symphony No. 7 K *
	Symphony No. 8 ("Unfinished") K *; CG-58 * (arr. Moses)
Schuller	*Seven Studies on Themes of Paul Klee* JL-94 (movt. 5-6 *)
Schuman	*Judith* A1-41
	New England Triptych A1-42 (movt. 1 only *)
	Symphony No. 6 A1-44
	William Billings Overture SG-128
Schumann	*Piano Concerto* K *
	Introduction and Allegro, Op. 92 * K *
	Symphony No. 1 K *
	Symphony No. 2 K *
	Symphony No. 3 K *
	Symphony No. 4 K *
Shostakovich	*Golden Age Ballet Suite* K *
	Festive Overture K *
	Symphony No. 1 K *
	Symphony No. 5 K *
	Symphony No. 6 A1-46
	Symphony No. 7 A1-49
	Symphony No. 9 K *
Sibelius	*Violin Concerto* MG4-62 *; K *
	Finlandia SG-117 *; K *
	Karelia Suite K *
	Projohlas Daughter K *
	Swan of Tuonela K *
	Symphony No. 1 K *
	Symphony No. 2 K *
	Symphony No. 7 A1-50 *
Smetana	*Moldau* K *
	From Bohemia's Forests and Meadows K *
	Sarka K *
	Blanik K *
	Bartered Bride Overture K *
Strauss, J.	*Blue Danube Waltz* K *
	Tales of the Vienna Woods Waltz K *
	Emperor Waltz K *
	Voices of Spring Waltz K *
	Artist's Life Waltz K *
	Roses from the South Waltz K *
	Acceleration Waltz K *
	Treasure Waltz K *
	Wiener Blut Waltz K *
Strauss, R.	*Also Sprach Zarathustra* K *

Death and Transfiguration K *
Don Juan A1-54 *; K *
Don Quixote K *
Burlesque K *
Ein Heldenleben K *
Salome's Dance A1-57 *; K *
Till Eulenspiegels Lustige Streiche SG-120 *; K *

Stravinsky
Jeu de Cartes A1-60
L'Oiseau de Feu SG-124 (Danse Infernale, Berceuse, Finale) *
Petrouchka K *
Le Sacre du Printemps K *; A1-61; MG1-152 (also has some percussion parts)
Symphony No. 1 K *

Suppe
Pique Dame Overture CG-34

Tchaikovsky
Piano Concerto No. 1 MG4-50 *; K *
Violin Concerto MG4-67 *; K *
Overture 1812 MG2-35 * (percussion also); CG-49; K *
Pomeo and Juliet Overture MG2-41 *; K *
Nutcracker Suites No. 1 and No. 2 K *
Sleeping Beauty Suite K *
Polonaise and Waltz from Eugene Onegin K *
Swan Lake Suite K *
Francesca da Rimini K *
Symphony No. 1 K *
Symphony No. 2 K *
Symphony No. 3 K *
Symphony No. 4 SG-103 *; K *; CG-85
Symphony No. 5 SG-109 *; K *
Symphony No. 6 K *

Vieuxtemps
Violin Concerto No. 4 K *
Violin Concerto No. 5 K *

Viotti
Violin Concerto No. 22 K *

Wagner
Faust Overture K *
Flying Dutchman Overture MG2-43 *; K *
Gotterdamerung Prelude CG-80 (end only)
Siegfrieds Death and Funeral March K *
Siegfrieds Funeral March (concert version;) parts 1 and 2 condensed) SG-118 *
Gotterdamerung Siegfrieds Rheinjourney K *
Flying Dutchman Prelude K *
Lohengrin Prelude K *
Act 3 Change of Scene CG-80
Meistersinger Overture MG2-45 *; K *
Parsifal Overture K *
Parsifal Good Friday Spell K *
Rienzi Overture K *
Tannhauser Overture K *; CG-45 * (arr. Moses)
Arrival of the Guests K *
Venusberg Music K *
Tristan und Isolde Prelude and Love Death K *
Walkure Ride of the Valkyries (opera version) CG-88 *
(concert vers.) CG-89 *

Weber
Abu Hassan Overture K *
Euryanthe Overture MG2-46 *; K *
Freischutz Overture K *

	Oberon Overture MG2-47 *; K *
	Symphony No. 1 K *
	Koncertstuck K *
	Clarinet Concerto No. 1, 2 K *
	Clarinet Concertino K *
	Bassoon Concerto K *
Weinberger	*Shvanda: Polka and Fugue* A1-67*
Wieniawsky	*Violin Concerto No. 2* K *

MINUTES: Board of Directors, PASIC-76, Rochester NY 10/ 15/ 76

President Olmstead called the meeting to order with the following in attendance: Jim Coffin, Mike Combs, Karen Ervin, Neal Fluegel, Marjorie Holmgren, Jackie Meyer, Jim Moore, Gary Olmstead, Charles Owen, Jim Petercsak, Dick Richardson, Mike Rosen, Fred Sanford, Tom Siwe, Peter Tanner, and Larry Vanlandingham.

The following announcements were made regarding the 76 Midwest Convention: Commercial Members Breakfast, 12/17: Board meeting, 12/17, 3 P.M.; Illinois State Chapter "Day of Percussion," 12/28.

Motion by Fluegel to establish a Hall of Fame Review Committee to review the procedure of selection while maintaining the Advisory Committee as the screening and nominating committee passed unanimously. The review committee will consist of Petercsak (chairman), Ervin, Keezer, and Owen.

PASIC-77: Unanimous approval of Knoxville, Tennessee, October 29-30/77 as site and dates for PASIC-77. The PASIC-77 Committee will consist of the PASIC-77 Host (chairman). PASNC-75 chairman, PASIC-76 Chairman, Exec. Secretary, and several members at large to be selected by the committee chairman. Mention of possible future sites include Denver, 1978; St. Louis, 1979; and San Francisco, 1980.

A motion by Richardson to hold the annual Board elections at the PASIC rather than the Midwest was unanimously approved. The present term will therefore be extended from Dec. 1976 to October 1977.

The Board is to study a report submitted by Coffin on "Expansion of PAS at all Educator Levels" and send comments and suggestions to Petercsak.

Combs announced the possibility of organizing an African trip which would include study with African drummers.

Two Rosen items were proposed for Board discussion including the possible establishment of a Consumer Affairs Committee and the possibility of eliminating manufacturers from Board membership. Rosen also read a letter from Bob Matson in support of the proposals. As a result of the discussion, a committee was established to report at the Midwest on the feasibility of establishing a Consumer Affairs Committee.

Meeting Adjourned.

Respectfully submitted,
Jacqueline Meyer, Recording Secretary

MINUTES: Board of Directors, Midwest-76, Chicago, 12/ 17/ 76

President Olmstead called the meeting to order with the following in attendance: Gary Beckner, Jim Coffin, Mike Combs, Karen Ervin, Neal Fluegel, Norm Goldberg, Marj Holmgren, Ron Keezer, Joel Leach, Jackie Meyer, Jim Moore, Gary Olmstead, Jim Petercsak, Dick Richardson, Fred Sanford, Tom Siwe, and Larry Vanlandingham.

The Executive Secretary's report included information from the several meetings held between the newly instituted Budget Advisory Committee (Leach, Chairman, Canedy, Goldberg, Richardson, and Rosen) and the Executive Committee. As a result of those meetings, it was recommended to the Board that Library subscriptions be raised from $5 to $7/year and Foreign memberships from $7 to $10 and $10 to $13/year (for the respective individual membership categories). The additional revenue from the foreign memberships is necessary to help defrey increased postage costs. The motion (moved by Meyer, second by Keezer) was passed unanimously. An additional recommendation was that PAS convention exhibit space be limited to PAS sustaining members with the exception of those organized and chartered as non-profit. This motion (moved by Goldberg, second by Fluegel) also passed unanimously.

A brief discussion concerning the distinction between the $7 and $10 individual membership categories was tabled to be given additional study by the Executive Committee. Any ideas by the membership are hereby solicited.

Vanlandingham reported on the State Chapters. The total State Chapter reimbursement for the period 11/75/-/12/76 was $7,074.75.

Petercsak reported on the Hall of Fame "Procedures and Guidelines." After lengthy discussion, Fluegel moved, second by Holmgren, to adopt the "Procedures and Guidelines" as amended during the discussion. The motion passed unanimously.

The PASIC-76 in Rochester registered well over 600 people. All convention costs were covered with convention revenue. PASIC-77 will be held in Knowville, Tennessee on October 28-29-30/77 hosted by Mike Combs and the University of Tennessee.

The Board unanimously accepted Gary Burton's resignation from the Board of Directors and approved the appointment of Harold Jones to complete Burton's term.

Meeting adjourned.

Respectfully submitted,
Jacqueline Meyer

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