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**Compositional and Orchestral Trends in the Orchestral Percussion Section Between
the Years of 1960-2009**

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ABSTRACT

Compositional and Orchestration Trends in the Orchestral Percussion Section Between the Years of 1960-2009

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The purpose of this study was to identify new trends and innovations as regards the orchestral percussion section between the years of 1960-2009. In order to identify possible trends this study examined 87 compositions written for orchestra between 1960 and 2009. The necessary historical background identified a number of trends already in use by 1960. Among those were increasing calls for special effects, the introduction and inclusion of the marimba and vibraphone in orchestral music, an increased demand for difficult and important mallet parts, general increases in the size and force of the percussion section, and an increased demand for expanded timpani range and tuning. Scores were examined for those trends as well for new or unusual playing techniques, the prevalence of multi-percussion setups in the orchestra, detail of composer instruction and percussion ensemble in the orchestra. Changing opinions and attitudes regarding percussion which occurred during the 19th century and the first half of the 20th century were also documented.

The results indicate that a number of changes took place in orchestral percussion writing from 1960-2009. General findings show increased demands on the percussion sections of today compared to the percussion sections of the past in both number of instruments and players. Also noted was an increase in composition for unpitched instruments (i.e. cymbals, triangles, tam-tams, drums, etc.) in a “pitched” way. Additionally, there was an increased prevalence of “multi-percussion” setups in orchestral ensembles as well as more frequent and unusual stick requests made by composers for the various instruments. Some compositional historical precedents were also documented, most notably the technique of bowing crotale and vibraphone bars. New directions in the composition of timpani parts were also discovered,

including calls for extreme ranges of tuning, extensive tuning, necessity of tuning gauges and extended techniques such as the glissando.

In the final analysis, this study demonstrated conclusively the increased importance of the percussion section to the orchestra. The study also demonstrated that many recent trends are likely to continue into the future. Conclusions and recommendations for further study were included.

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Chapter I

THE CHANGING ROLE OF PERCUSSION FROM THE EARLY 19th CENTURY TO THE MID-20th CENTURY

INTRODUCTION

In the history of orchestral music, percussion is arguably the newest regular member of the orchestra. The general acceptance of many percussion instruments into the orchestra, instrument by instrument, has happened over a relatively brief period of time. In addition to the acceptance by composers of new standard percussion instruments throughout the 19th and early 20th centuries, there has also been an acceptance by composers of a number of new and innovative playing techniques as standard practice. However, literature detailing those trends and developments in the percussion section since 1960 is very limited. The literature regarding special technique requests which does exist fails to answer the question: How frequently are special technique requests made by composers and do such requests represent an overall trend in the direction of orchestral percussion writing or are they simply isolated incidents?

The early 20th century saw the acceptance of a standard percussion battery in orchestral music and initial glimpses into the performance possibilities of that section as envisioned by innovative composers. Interestingly, prior to 1960, many writings about orchestral and percussion scoring still bore traces of a general distrust on the part of the composers as to the value or possibilities of the percussion section. Those sentiments extend back to the beginnings of orchestration writings in general. However, beginning in the 1960s experimentation by composers with percussion instruments was becoming more widespread. Among the trends becoming prevalent by the 1960's were 1) the expansion of what could be considered a "percussion instrument" and the general inclusion of "found objects" into the section, 2) an increasing call by composers for effects, 3) the breaking away of percussion

instruments from their traditionally prescribed rolls, 4) the introduction and inclusion of the marimba and vibraphone in orchestral music, 5) an increased demand for difficult and important mallet parts (specifically for marimba) and for sophisticated mallet technique, 6) a general increase in the size and force of the percussion section, and 7) an increased demand for expanded timpani range and tuning.

Percussion parts from a representative list of composers who scored extensively for percussion between the years of 1960-2009 were chosen for this project. The works studied reflect the styles of several composers while specifically targeting pieces with large percussion forces, either in number of players or in the number of percussion instruments. This study is not a stylistic analysis of any one particular composer, but rather an examination of the state of percussion writing in the past half century with regard to the occurrence and frequency of such factors as percussion instrumentation (new or unusual instruments or lack of standard instrumentation), new or unusual playing techniques, multi-percussion in the orchestra, detail of composer instruction, soloistic moments, and percussion ensemble in the orchestra. By examining a large number of works, this study investigates which trends have continued over a period of time, the extent of such trends, and how popular they seem to be. This study also examines whether any new, previously unknown innovations have been introduced into general practice and acceptance of percussion writing in the past 50 years.

At the end of his book *Percussion Instruments and Their History*, James Blades wrote,

The corps of drums in some form or other is centuries old; there seems little doubt of its activity in future years. But what of the prevailing focus on the percussion ensemble and the use of the percussion force in the orchestra? Once again we find opinions sharply divided. There are those who contend that only the surface of the possibilities of percussion has been skimmed. Others are of the opinion that their potentialities have been almost fully exploited, and that the time is not far distant when composers will seek a fresh medium of expression.¹

¹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd, 1992), 435.

By examining the percussion parts of a representative portion of orchestral works composed since 1960 this study illustrates the path that percussion writing has taken during the second half of the 20th century and brings orchestral percussion research up to date.

THE CHANGING ROLE OF PERCUSSION FROM THE EARLY 19th CENTURY TO THE MID-20th CENTURY

Percussion instruments have been included in the opera orchestras of Western and Eastern Europe since the origins of those ensembles some 500 years ago. The structure and design of many of those percussion instruments changed relatively little over those 500 years. The uses of those instruments, however, has evolved and developed, most notably in recent years. As the orchestral ensemble emerged from its operatic origins into the symphonic orchestra of today, percussion instruments have been both sporadically accepted for their ability to contribute realism through sound effects and dismissed as a legitimate member of the developing orchestra because of their inability to produce definite pitch. Percussion instruments were largely neglected and sometimes scorned by composers until the late 19th century. While initial acceptance of percussion instruments into orchestral compositions was slow, the changes and developments that have taken place regarding percussion in the past 100 years have happened relatively quickly. Not only have a large number of instruments been explored, exploited, and accepted, but composers have awakened to the possibilities inherent in such a wide selection of sounds.

The years between the end of the 19th century and the mid 20th century saw the role of percussion change from occasional accompaniment to an integral and indispensable section of the orchestra. The changes during those years prompted a number of studies regarding percussion history, instrument development, and playing techniques. However, most such studies were focused on the period prior to 1960. The focus of this study is primary in the

period from 1960 to 2009. The developments during those 49 years have helped to put the developments of the earlier part of the 20th century into perspective. No other recent studies exist that examine a broad spectrum of percussion developments in the orchestral field during the second half of the 20th century. The nature of orchestral parts written for percussion in orchestral literature in the latter part of the 20th century reveals recent attitudes towards percussion and avenues that have yet to be explored. A review of recent compositions also reveals innovations specific to the 20th century and which of those innovations have been successful.

In addition to compositional trends regarding percussion in orchestral music over 49 years, this study also examines the changing attitudes towards percussion and timpani in music scholarship. The 1960s marked the beginning of an era of increased experimentalism in percussion composition and also marked the beginning of an era of time when serious studies of percussion and timpani began to appear in great number. A review of the comments in orchestral literature and scholarship regarding percussion in the second half of the 20th century helps us to gauge the level of interest suddenly directed towards the percussion section. James Blades, the author of one of the most important and comprehensive studies of percussion history and its development in the orchestral ensemble, wrote in the author's notes to the revised edition of his work, *Percussion Instruments and Their History*, "It is surely fair to say that from the beginning of this century, and particularly from 1950 to 1975, no section of the orchestra has seen greater changes in instruments, orchestration, and techniques, than the percussion section."²

Literature recognizing the significant growth and development of percussion appearing after 1960 is not limited to percussion histories. In his 1979 work, *Style and Orchestration*, Gardner Read wrote,

² James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 31.

The only orchestral section that can boast of a truly phenomenal physical growth and musical development in the past century is the percussion. Both in types of instruments required and in the extent and manner of their use the accretion of this part of the orchestra has been astounding. From a modest nucleus of two timpani, plus the occasionally used bass drum, cymbals, and triangle (mostly in compositions for the theater), to a grouping of some fifteen or twenty assorted wood, metal, and membranous instruments (requiring from three to eight players), the percussion has evolved into an orchestra within an orchestra. This expansion, which began in the early nineteenth century (with Berlioz, Meyerbeer, and others), reached its zenith by the era of late Romanticism at the turn of the century. Today, in the late twentieth century, the concept of the “percussion orchestra” is an essential aspect of Neoromantic, Exotic, and avant-garde orchestral expression.³

The development of orchestral percussion coincided with a number of stylistic developments in orchestral music throughout the latter half of the 20th century. However, percussion is not specific to one of these styles but is rather reflected across a variety of genres. Read went on to say that, “The variety of drums in some contemporary scores is such as to place the percussion group as an orchestra within an orchestra. Here, undoubtedly, is a significant change of orchestral style.”⁴

With the surge of interest in the percussion section also came questions about the possible future direction of percussion. Edgar Gangware, in a dissertation from 1962 entitled The History and Use of Percussion Instruments in Orchestration, recognized the rapidity of these developments. He wrote that, “...the prime experimentation with this section of the orchestra did not begin until the second quarter of the [twentieth] century. A survey of basic techniques begun in this period may indicate the direction the percussion section will proceed in the remainder of the century.”⁵

This study picks up where comprehensive studies of the past left off in their examination of the orchestral repertoire. This study is both timely and essential now, as many of the most important percussion histories are almost half a century old. The aforementioned Blades book,

³ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 193.

⁴ *Ibid*, Forward xiv.

⁵ Edgar Brand Gangware, Jr., The History and Use of Percussion Instruments in Orchestration (Northwestern University, 1962), 250.

Percussion Instruments and Their History, is one such example. The last chapter, entitled “Composers’ Use of Modern Percussion,” contains many stories and anecdotes largely based on the author’s personal experience as a performer and as a collaborator of Benjamin Britten. However, since Blades’ final chapter was premised on contemporary accounts it lacks a perspective created by the passage of time. The time has come to discuss the evolution of percussion from where Blades left off almost 50 years ago.

Increased attention to timbre as a compositional element was a contributing factor in the assimilation of greater amounts of percussion into the orchestra. In the preface to their book, *Handbook of Percussion Instruments*, Karl Peinkofer and Fritz Tannigel examined some of the influences that brought percussion to the forefront. They wrote that, “In the late 19th and early 20th centuries...we observe the emergence of a pronounced interest in timbral aspects of music (late Romanticism and Impressionism), and with it a considerable emphasis on percussion effects. This trend grew to unimagined prominence during the second half of the 20th century, i.e., in the music of our own era.”⁶ The authors proceeded to list three reasons for these developments,

- 1) Our present contemporary (concert) music, characterized by extremely complex rhythms and unprecedented preoccupation with timbres, requires a much stronger emphasis on percussive sounds than had ever been known in Western Music. As a result, the percussion sections of our orchestras, and even of our chamber ensembles, have grown enormously in the number and of variety of instruments used and in the commensurate proficiency of their performers.
- 2) The world-wide proliferation of jazz and its successors has brought into the Western musical environment a large number of hitherto unknown, or at least unused, instruments and rhythms of African and Latin-American origin. Moreover, these new stylistic features of jazz made inroads into a fair amount of ‘serious’ music, in America as well as abroad, thus adding still more new instruments to the orchestral percussion section.
- 3) Once the influx of African and Latin-American (Afro-American) instruments and sounds had spread and become a familiar phenomenon, instruments and

⁶ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 7.

playing techniques from other continents, especially from East Asia, also made their appearance, further enriching our percussion resources.⁷

Orchestration literature's attitudes towards percussion, which are discussed in further detail later in this study, also exhibited an increased awareness of changes affecting the percussion section after 1960. An orchestration book by George Frederick McKay written in 1963 recognized the underdeveloped possibilities of percussion in orchestral writing. McKay said, "...for centuries, the music of primitive, ancient and oriental peoples had a highly developed art of percussion, the familiar European orchestral music has been somewhat underdeveloped in its use of percussive timbre."⁸ It was the strong association of percussion instruments with specific peoples or cultures that both informed early use of these instruments and delayed their total acceptance by composers. The globalization of the 20th century and the increased awareness of, and exposure to, world cultures undeniably influenced the inclusion of greater amounts of percussion in orchestral scores.

The changing role of percussion and increased recognition of its potential by composers was accompanied by an upsurge in expectations for percussion playing. Gordon B. Peters, the author of the book *The Drummer: Man*, explained that percussion experienced a "renaissance" in the middle of the 20th century. He said, "The percussion performers of today necessarily are becoming more versatile. They are greater technicians, having a musical training comparable to other members of the orchestra...Conductors are demanding more from their percussion sections. And composers and arrangers are reveling in their 'new' discoveries of the rich color-palette available in the percussion section. The middle of the 20th century could well be called a period of *renaissance* in percussion."⁹

The idea of a renaissance surrounding percussion writing and playing was echoed in a variety of sources in the 1960s and 1970s. Robert Ricci, in a 1971 article entitled "The

⁷ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 7-8.

⁸ George Frederick McKay, *Creative Orchestration* (Boston: Allyn and Bacon, 1963), 178.

⁹ Gordon B. Peters, *The Drummer, Man: A Treatise on Percussion* (Wilmette, Ill.: Kemper-Peters Publications, 1975), 32.

Percussion Renaissance” written for the newly formed Percussive Arts Society, wrote, “It wasn’t until the twentieth century that composers began to make full use of the percussion instruments, employing them in fascinating new settings, with virtuoso technique often becoming mandatory. Now the percussion has finally become liberated from the role of occasional support or a splash of color at a point of emphasis or climax. In particular composers have become intrigued by the keyboard percussion such as xylophone, vibraphone, glock-enspiel [sic] and the marimba.”¹⁰

To the delight of percussionists everywhere, composers were finally entrusting the percussion section with important musical functions. Gardner Read compared this development to other orchestra sections. He wrote, “...it has been during the present century that orchestrators have made the most varied and sensitive use of percussion color potential. In fact, one might go so far as to say that this orchestral section has long since assumed a role comparable to that held by the brasses in the nineteenth century and by the woodwinds in the eighteenth. The strings are still sovereign, at least in the Neoromantic orchestra, but the percussion assuredly has for some time enjoyed equal status with woodwinds and brasses.”¹¹

Agitation by percussionists for equal status in the orchestra was another consequence of increased awareness of the changing role of percussion. These concerns were reflected in percussion scholarship beginning mid-century. Peter Hyde Tanner wrote in a 1967 dissertation, “In the last few years there has been a comparative upsurge in serious writing about and in original composition for percussion instruments. It would appear that these instruments and their proponents finally are emerging from the shadows of ignorance, misconception, disreputation, and oblivion that have plagued them to a greater extent and for a longer period than any other instrument of the orchestra.”¹² The efforts of composers who brought attention to percussion instruments and of the percussionists who effectively performed serious

¹⁰ Robert Ricci, “The Percussion Renaissance” *Percussive Notes* 10, no. 1 (1971): 20.

¹¹ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 193-194.

¹² Peter Hyde Tanner, *Timpani and Percussion Writing in the Works of Hector Berlioz* (The Catholic University of America, 1967), ii.

compositions changed the way percussionists were perceived by the greater musical community. The years after 1960 saw many percussion genres given validation with the contributions of serious compositions by reputable composers. Among those developments were the creation of a marimba repertoire, the continued development of percussion ensemble repertoire, the development of multi-percussion as a solo instrument, and a demand for commissions by many newly created percussion groups, college percussion programs, and percussion soloists.

The changing use of percussion throughout the 20th century included not only the use of many previously unexploited percussion instruments, but also a continually evolving use for familiar percussion instruments. In his work on the history of timpani and percussion, Jeremy Montagu compared use of percussion in 19th century works to how percussion instruments are used in 20th century works. He said, "Whereas in the nineteenth century there has been some imitation of exotic percussion to give a flavouring of local colour, in the twentieth century there came the wholesale adoption of foreign percussion instruments into Western music. Sometimes this was again for the sake of an exotic flavor, but usually it has been simply to make more and different sounds available."¹³ The desire of composers to create previously unknown sounds led to an exploration of timbre that necessarily put the percussion section in a very important position. The sounds available from the percussion section are so vast and so varied that the possibilities for their use are almost endless. Reginald Smith Brindle wrote, in his book *Contemporary Percussion*, that "Some instruments become identified with certain musical epochs – the renaissance lutes and viols, the baroque organ, the classical string quartet, the romantic pianoforte, and so on. Our own time seems to be becoming more and more the age of percussion. In only a short span of years, percussion instruments have come

¹³ Jeremy Montagu, *Timpani and Percussion* (New Haven: Yale University Press, 2002), 143.

to take a dominating part in today's music. Percussion timbre is now the basis of 'contemporary sound'.¹⁴

The contemporary sound that Brindle referred to is the end result of a century of musical experimentation across a variety of stylistic orchestral genres. As composers experimented with serial composition, neo-romanticism, expressionism and styles influenced by pop, jazz and other genres, percussion proved indispensable and entitled it equal consideration with other instruments of the orchestra. Blades wrote, "Twentieth-century orchestration has demanded a dominant role from the instruments of percussion. Succeeding years have witnessed an ever-increasing use of the normal percussion instruments, together with a desire on the part of composers to exploit the possibilities of unusual devices and novel instruments."¹⁵ Bryan Simms, in his book entitled *Music of the Twentieth Century*, agreed that "The percussion has undergone a dramatic increase in its variety and independent use, and other sources of noise or sounds of unfixed pitch have lent their timbres to the modern composer."¹⁶ Even the Oxford University Press referred to the mid to late 20th century as the "percussion age."¹⁷

The sheer number of instruments from a wide variety of cultures proved difficult for some composers and authors to handle. However, percussion could no longer be ignored. David Cope, in his work *Techniques of the Contemporary Composer* wrote, "Much to the delight of most percussionists and the frustration of those wishing to calcify the classical orchestra, almost every type and size of Western and non-Western instrument has found definition as a percussion instrument..."¹⁸ An 2012 article published in the *Los Angeles Times* entitled "Odd Instruments are Music to Composers' Ears" confirms that these trends are currently alive and well. Rick Schultz, the author of that recent article, wrote, "Increasingly, composers like [Oscar]

¹⁴ Reginald Smith Brindle, *Contemporary Percussion* (London: Oxford University Press, 1970), 1.

¹⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 412.

¹⁶ Bryan R. Simms, *Music of the Twentieth Century* (Belmont, CA: Schirmer, 1996), 110.

¹⁷ "The xylophone had to wait until the 'percussion age' of the mid- to late-twentieth century before attracting much attention from composers and arrangers, though it has a long history of virtuoso performance" (Campbell, Greated and Myers, 210).

¹⁸ David Cope, *Techniques of the Contemporary Composer* (New York: Schirmer Books: London, 1997), 129.

Bettison and Mason Bates, the Chicago Symphony's composer-in-residence, are employing unusual musical instruments. As they would be the first to acknowledge, the practice is not new. It is a tradition that dates at least as far back as Beethoven's inspired idea to insert a small Turkish military (or "janizary") band, complete with the then-exotic triangle and cymbals, into the last movement of his Ninth Symphony."¹⁹

A survey of the most recent literature related to percussion validates what many authors 50 years ago suspected, that the surging interest in percussion, which began mid century, has continued. The *Dictionary of Percussion Terms as Found in the Symphonic Repertoire* by Morris Lang and Larry Spivack acknowledged in its preface to the 1997 edition that, "Since the Dictionary was first released in 1977, there has been an explosion of interest in percussion instruments throughout the world."²⁰ Similar statements are echoed across not only percussion specific literature, but in a variety of texts. Kent Kennan and Donald Grantham, the authors of the book *The Technique of Orchestration*, wrote in their 1983 edition that, "In this century and especially since 1960, the importance of the percussion section has increased enormously, along with the sophistication and complexity of music written for it. It is not too much to say that percussion instruments provide the 'characteristic sound' of a good deal of recent music and that composers consider that section equal in importance to other sections of the orchestra."²¹ Kennan and Grantham went on to list, as specific features characteristic of music written since 1950: "1. The prominent use of the percussion section – tuned percussion instruments in particular; 2. The allotting of specific percussion parts to particular players."²² Likewise, the noted composer and conductor Pierre Boulez wrote in the forward to James Holland's 1978 book entitled *Percussion*, "In the last thirty years the role of percussion in the orchestra, like that of chamber music, has completely changed: once percussion played a episodic part in music,

¹⁹ Rick Schultz, "Odd Instruments Are Music to Composers' Ears," *Los Angeles Times*, 8 April 2012.

²⁰ Morris Lang and Larry Spivack, *Dictionary of Percussion Terms as Found in the Symphonic Repertoire* (Brooklyn, N.Y.: Lang Percussion Inc., 1997), 2.

²¹ Kent Wheeler Kennan and Donald Grantham, *The Technique of Orchestration* (Englewood Cliffs, N.J.: Prentice-Hall, 1983), 226.

²² *Ibid*, 344.

now it is often an essential force. Proliferation abounds there at the risk of anarchy."²³ Robert Ricci shared this view, stating that, "...Undoubtedly, the trend toward diversification will increase as time goes on."²⁴

It was obvious to musicians and scholars of the past half century that important and permanent changes were taking place in the percussion section. What remained to be seen then was where this experimentation and diversification would lead. Gangware indentified possible directions of percussion writing in the conclusion of his dissertation. He said,

A closer inspection must be made in order to ascertain wherein this real progress will lead. The experimentation is not haphazard, but rather divides itself into various schools or areas of development generally thought to be as follows: further development of the percussion section as an equal member of the contemporary orchestra, use of percussion instruments as solo instruments with orchestral accompaniment and the development of percussion instruments entirely apart from the orchestra, the percussion ensemble as an entity in itself. Although there is undoubtedly some overlapping among them, these are the developments which seem to appear most frequently in contemporary composition involving percussion instruments.²⁵

It is important to document the changes that have taken place over the past half century and which continue to take place in percussion as they are, in many ways, indicative of greater changes taking place in the orchestral music genre. Gardner Read explained it best when he wrote that, "Style in orchestration...is inextricably bound up with conception, content, and purpose. Indeed, we may truly say that the one cannot exist without the other. What a composer does with his orchestra is as significant as the melodies he fashions, the harmonies he chooses, the rhythms he feels, or the forms that stimulate and challenge him. A composer's orchestration is far more than just a personal stamp; it is, quite literally, the quintessence of his musical thought, expression, and artistic personality."²⁶

²³ James Holland, *Percussion* (London: Macdonald and Jane's, 1978), Forward ix.

²⁴ Robert Ricci, "The Percussion Renaissance," *Percussive Notes* 10, no. 1 (1971): 20.

²⁵ Edgar Brand Gangware, Jr., *The History and Use of Percussion Instruments in Orchestration* (Northwestern University, 1962), 250-251.

²⁶ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 4.

Chapter II

THE ACCEPTANCE AND USE OF PERCUSSION INSTRUMENTS IN THE ORCHESTRA DURING THE 19th AND EARLY 20th CENTURIES

While the earliest written history of percussion and timpani begins hundreds of years ago with orchestration treatises (to be discussed in the following chapter), method books, tutors, and encyclopedia articles, books dedicated entirely to percussion history did not appear until the 20th century. This chapter will outline major events in percussion's orchestral history and will present bibliographical recommendations for further study.

TIMPANI LITERATURE AND HISTORY

Timpani were an integral part of the orchestral ensemble from its inception. Despite their early acceptance, mechanical limitations prevented composers from complex experimentation with the drums until the 19th century. Machine timpani were not available until the early 19th century, and pedal timpani, allowing timpanists to quickly change pitch while playing, were not in widespread use until the early 20th century. James Blades, in his work *Percussion Instruments and Their History*, and Edmund A. Bowles, in his work *The Timpani: A History in Pictures and Documents*, cite an 1812 invention by Gerhard Cramer of Munich as the earliest successful machine timpani innovation. Blades wrote, "As early as 1812, Gerhard Cramer of Munich was responsible for a device whereby the turning of a central screw operated all screws simultaneously, and experiments were made at this point to tune in semitones by a series of pedals."²⁷ Bowles gave a more detailed account, writing, "The first major step was taken in 1812, when Gerhard Cramer, *Königliche Hofpauker* in the Munich court orchestra

²⁷ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 276-77.

(formerly quartered at Mannheim), invented the first rapid tuning device.”²⁸ Timpani have long been generally accepted as legitimate orchestral instruments by the larger musical community due to the timpani’s long involvement in the genre and their ability to tune pitches. However, technical issues stunted the musical development of the timpani for quite some time. Once machine drums became available and various types were circulated into common use, composers were free to begin testing the limits of the drums.

The history and types of machine drums was well documented by Bowles. His book recounted the evolution of the drums and memorialized significant drum manufacturers through pictures, documents, and patents. Bowles also provided a historical list of representative milestones for timpani in the orchestral repertoire and documented the demands on the orchestral timpanist. In addition, Bowles’ bibliography thoroughly reviewed available literature relating to the timpani and their evolution. A supplement to the original work, published in 2009, made Bowles’ collective works the most comprehensive and up-to-date resources detailing the history of the timpani. Also worthy of mention is Percival A. Kirby’s work, *The Kettle-Drums, a Book for Composers, Conductors and Kettle-Drummers*. This work was referenced repeatedly by both Blades and Bowles and provided a concise account of the history of the timpani, as well as information about the workings of the drums and various techniques that can be employed while playing the timpani. Though published in 1930, the information is still as relevant to timpani playing and techniques now as it was then.

The most significant technical change to happen to timpani after 1812 was the creation of pedal timpani, allowing timpanists to tune hands-free. The first of these models appeared as early as the 1840s, but highly functioning models of these drums did not come into general use until after 1900.²⁹ The continuing technical development of the timpani resulted in increasing demands on the skill of timpanists during the 19th century. Blades wrote, “The nineteenth

²⁸ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 42.

²⁹ “In 1843 a German mechanic introduced a pedal-operated machine drum” (Blades, *Percussion Instruments and Their History*, 278).

century was...not only a period of continued experiment in the design of orchestral timpani and other instruments of percussion; what is equally important to progress in this direction, it was also a time of growing demand by composers for general improvements. Berlioz himself made demands so numerous and particular as to constitute a milestone in any history of percussion."³⁰ Bowles cited the invention of the Dresden-style timpani pedal mechanism in 1881 as the final pivotal milestone in timpani development.³¹ Bowles singled out this invention as the most important and influential because it permitted the timpanist to tune hands-free and because the mechanism could be outfitted to existing timpani, thus increasing its market. Bowles explained that, "There was an immediate symbiosis between composers and the new pedal timpani, especially in Germany and Austria; and many compositions by Mahler and Strauss, for example – particularly the latter's operas, as mentioned earlier – could not be played easily or at all without them."³² Bowles did note, however, that, "...the symphony orchestras were slower to adapt to the new drums, both because it took longer for composers of symphonic works to require many very quick changes of pitches, and also owing to an innate conservatism, particularly in England and America."³³

While some composers took a while to include new timpani innovations in their compositions, once they figured out what was possible, they pushed the limits in ways that could scarcely have been imagined 100 years before. Bowles wrote,

Music in the twentieth century reflects the dominant role of percussion instruments in general. Composers have introduced passages of a rhythmical complexity and a variety of rapid tunings that demand complete technical proficiency on a level never dreamed of before. Even glissandos and other special effects are now commonplace. And the influence of jazz on writing of the timpani, particularly its syncopation, continues. In short, the instrument has been exploited, some would say, to its very limits.³⁴

³⁰ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 279.

³¹ "The final stage in the evolution of machine drums during the nineteenth century was the so-called Dresden pedal timpani patented in 1881 by Carl Pittrich, *Kapelldiener* in the Royal Saxonian Orchestra" (Bowles 53).

³² Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 56.

³³ *Ibid*, 56-57.

³⁴ *Ibid*, 77.

Bowles continued with his assessment of the changes that brought timpani writing to where it today, saying,

Perhaps the most important change that has been taking place during the past fifty years or so has to do with the perceived role of the timpani in the orchestra. There seems to have been a fundamental shift, particularly in America, away from the concept of essentially supporting or underpinning the music as an ensemble instrument to the idea of the timpani functioning in a solo capacity. Indeed, many timpanists take it upon themselves to “edit” their parts with impunity, adding more notes, and even more drums, to the score, thereby throwing authenticity to the winds. The rationale would seem to be that, first, if the composer were alive today, this is what he would do; and second, that the kettledrum is a solo, not an ensemble instrument. And whereas in the past the drums blended in with the overall orchestral texture – one can hear this in early electrical recordings – now they are usually in the foreground, their sounds more forwards, louder, and more “percussive”...In short, yesterday’s drumming was generally less obtrusive, a part of the ensemble, whereas today’s tends to be more conspicuous. It is almost as if the timpani has now come full circle and are once again considered solo – if not indeed virtuoso and display – instruments, as they were some four hundred years ago.³⁵

The technical capabilities of modern timpani not only allowed composers to experiment with the function of the timpani, but also allowed players the technical freedom to “improve” upon parts that may have benefitted from these innovations. Blades wrote that, “Opinions are sharply divided as to the justification of amendments in standard works. That the restrictions under which the older classical composers wrote for the drums resulted in defects is undeniable.”³⁶ While not the intention of this author to judge the merits of editing parts, it is essential to be mindful of the trends of both composers and players in an examination of parts written after 1960.

Gardner Read, in his work, *Thesaurus of Orchestral Devices*, published in 1953, and his follow up work, *Compendium of Modern Instrumental Techniques*, published in 1993, provided a laundry list of effects used by composers on both timpani and percussion. Among those effects used on timpani are use of extended range, chords, dampening, methods of striking, muffling techniques, and pedal glissandi. This study’s analysis of works published after 1960 takes the

³⁵ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 77-78.

³⁶ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 274.

aforementioned effects as well as the solo role of timpani in orchestral music, as referred to by Bowles, into consideration.

Among composers frequently mentioned by Blades and Bowles as being innovators of timpani writing are Gustav Mahler, Richard Strauss and Hector Berlioz. Other composers often cited in articles and books who are considered early innovators of timpani technique and writing are George Frideric Handel and J.S. Bach.³⁷ A 1951 book called *The Art of Orchestration* by Bernard Rogers also listed works by composers that he considered to be virtuoso examples of timpani writing. Among the composers he listed are Igor Stravinsky, Edward Elgar, Béla Bartok, Leonard Bernstein and Howard Hanson.³⁸

PERCUSSION LITERATURE AND HISTORY

As was the case with timpani, many authors in the later 20th century documented the changing role of other percussion instruments from background support to foreground noise. In the work *Musical Instruments: History, Technology and Performance of Instruments of Western Music*, the authors wrote, "Percussion is now far more prominent than it used to be. In both concert and dance music, percussion used to be part of the 'backing' – now it is frequently the centre of attention. Composers, performers, and instrument makers have more scope for creating imaginative new effects with percussion than with any other class of non-electronic instrument."³⁹ The evidence for this type of statement, seen frequently throughout texts written in the past 50 years, could be found in the expanded number of instruments that became standard to the percussion section, the complexity of parts percussionists were expected to play, and the solo nature of those parts.

³⁷ Gene J. Pollart, "The Use and Innovations of Percussion in the Works of J.S. Bach and Handel," *Percussionist* 13, no. 3 (1976): 79.

³⁸ Bernard Rogers, *The Art of Orchestration; Principles of Tone Color in Modern Scoring* (New York: Appleton-Century-Crofts, 1951), 72.

³⁹ Murray Campbell, Clive A. Greated and Arnold Myers, *Musical Instruments: History, Technology and Performance of Instruments of Western Music* (Oxford: Oxford University Press, 2006), 217.

The earliest available information on percussion playing and instruments can be found in treatises and tutors. Lists of such documents, often out of print or in languages other than English, can be found in an appendix of *The Encyclopedia of Percussion*, compiled and edited by John H. Beck. In addition to providing relevant historical bibliography, this work includes a number of articles on individual percussion topics by a number of noted percussionists and historians, information about percussion instruments, and a dictionary of percussion terms. Two noteworthy earlier texts on percussion development, often mentioned by later writers, are *The History of Musical Instruments* by Curt Sachs and *Orchestration* by Cecil Forsyth. For an examination of the state of percussion in the orchestra by the mid 20th century, however, the most up to date comprehensive histories written about percussion can provide the broadest perspective.

The aforementioned James Blades book entitled *Percussion Instruments and Their History* provides arguably the most comprehensive resource that has been published to date on the subject of percussion instruments and the history of percussion in the orchestra. Blades covered not only the origins of percussion and timpani, but the role of percussion and timpani in various cultures around world. The history in this work includes a variety of percussion related subjects and also musical examples, iconographical evidence, and Blades' own valuable insight from a career in playing orchestral music.

A dissertation published in 1962 by Edgar B. Gangware, entitled [The History and Use of Percussion Instruments in Orchestration](#), also dealt with the evolution of percussion instruments to their present usage. Like Blades, Gangware devoted a significant portion of his dissertation to the journey of percussion instruments across Eastern and Western Europe and into the orchestra. His work included examples from many orchestral pieces and traced the trajectory of percussion in the orchestra to the time at which the dissertation was completed. Gangware pointed out in his dissertation that,

...the average percussion instrument was introduced into the orchestra on the basis of its descriptive nature, more specifically, the ability of a certain instrument to be associated with a definite set of facts, often not even related to a musical aspect. This was especially true in the opera orchestra, which, in its desire to assist in portraying a story, often added percussion instruments of a descriptive nature which were entirely non-musical. Some of the unusual instruments such as the anvil, wind machine, etc. are generally associated with this type of use.⁴⁰

This opinion was supported by the historical account of percussion in the orchestra and the individual histories of specific percussion instruments given by Blades. Gangware continued, saying that, "...of real importance is the fact that the traditional sound associated with most of the percussion instruments has been isolated and disassociated from past uses."⁴¹

Gordon Peters' work *The Drummer Man: A Treatise on Percussion* also recounted the history of selected percussion instruments and their role in orchestral music. This work, published in 1975, was an updated version of Peters' Master's Thesis, completed in 1962 from the Eastman School of Music. In his assessment of the historical trajectory of percussion in the orchestra, Peters said, "Composers Leos Janáček, Giacomo Puccini, Gustav Mahler, Claude Debussy, Richard Strauss, and Jean Sibelius found new expressive uses for percussion...As with Berlioz and Mahler, often as many as six or seven percussionists would be needed, and many of these parts are virtuosic and soloistic. The orchestral percussion ensemble was at last born with the beginning of the Romantic Era."⁴² Peters also said, of the generation after Mahler and Strauss, that "The next generation of composers elevated the percussionist to the true level of a virtuoso artist, a soloist like other players of the orchestral instruments. Their compositions demanded an increasingly more exacting standard of techniques and musicianship. They focused a new attention on the keyboard percussion instruments, such as the glockenspiel, xylophone, and the tubular chimes."⁴³

⁴⁰ Edgar Brand Gangware, Jr., *The History and Use of Percussion Instruments in Orchestration* (Northwestern University, 1962), 247.

⁴¹ *Ibid*, 248.

⁴² Gordon B. Peters, *The Drummer Man: A Treatise on Percussion* (Lawton, OK: Percussive Arts Society, 2003), 25.

⁴³ *Ibid*, 25.

Arguably, the growth of the percussion section started with Beethoven, expanded with Wagner and Rimsky-Korsakov, and blossomed in the 20th century. In a section of his book *Style and Orchestration*, Gardner Read stated that, "New sounds in the orchestral palette came solely by way of the percussion section. The bass drum, cymbals, triangle, and glockenspiel were not, of course, newcomers to the orchestra, as all had been used as far back as the early eighteenth century. More of an innovation was the requisition of tam-tam, gong, xylophone, tambourine, castanets, and such oddities as the ratchet, cowbells, and the wind machine – to name but a few of the more exotic percussion variants grafted onto the standard section."⁴⁴ Blades agreed that the inclusion of these smaller instruments was of great consequence. He wrote, "In latter years composers have made effective use of the more simple instruments of percussion in symphonic works. Except in Mahler, such instruments were rarely heard in large scale orchestral compositions...Thirty years ago, the inclusion in a symphony work of an anvil, slapstick, wood block, ratchet, claves and rim-shot, would have been surprising."⁴⁵

Read, in examining percussive trends in the Expressionist orchestra of the 1930's, observed,

When the composer of Expressionist persuasion does employ percussion voices he usually chooses almost exclusively melodic or colorative components; seldom are his percussive instruments purely rhythmic factors in his orchestration, as we would find in the scores of Stravinsky and Bartok, for instance. This means that the keyed instruments – xylophone, glockenspiel, and vibraphone – are the most favored, being capable of contributing both melodic elements and distinctive color flashes to the orchestration. It is significant that of the nonpitched percussion, the low-voiced instruments – bass drum, tam-tam, gong – are most commonly used. The brightness of the triangle, the dry crispness of the snare drum, the related rustle of the tambourine, the click of the castanets – these are seldom compatible with the sonorous images of the Expressionist orchestrators.⁴⁶

Distinct uses of percussion instruments throughout the various musical eras were outlined well by Read. Such trends were also noted by Blades as he detailed orchestral percussion history

⁴⁴ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 118.

⁴⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 424.

⁴⁶ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 174.

by era. Blades wrote, "Compositions from the twenties onwards show not only that composers were becoming increasingly demanding in quantity, but that what might hitherto have been considered a fastidious or highly specialized use of percussion was fast becoming common practice..."⁴⁷ Blades also recognized that these incidences were not specific to only one area of orchestral experimentation. He remarked that, "With composers of all nationalities orchestral percussion proved a rich field for experiment during the 1920's and '30's. Further possibilities regarding varying tones on the timpani and the tuned percussion were exploited, and the indefinitely pitched instruments, in addition to their function as carriers of accents and rhythms, constantly gained ground in the colouring of orchestral texture."⁴⁸

Extended techniques and effects affected the percussion section as well as the timpani. Some effects listed by Garner Read in his books included glissandi on mallet instruments, muffling techniques, off-stage percussion directions, tremolo, stick types, call for snare drum without snares, tuning of unpitched percussion instruments, and new areas of striking the percussion instruments. In *The Thesaurus of Orchestral Devices*, Read listed every imaginable effect instrument by instrument (by piece, page, and measure number) that had been used in orchestral works up to the time of publication in 1953. A chapter on the evolution of the orchestra also listed the orchestrations for interesting and notable pieces by well-known composers starting with a 1628 work by Benevoli and ending with the 1943 Bartok *Concerto for Orchestra*.

Several other books gave historical accounts of percussion as it pertains to Western culture and its history in the orchestra. Jeremy Montague's book *Timpani and Percussion* included a history of Western percussion, touching on antiquity and then progressing era by era from the Middle Ages through the 20th century. Montague devoted a chapter to world percussion, but the vast majority of the history pertained to the development of the percussion

⁴⁷ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 416.

⁴⁸ *Ibid*, 415.

instruments and their use in ensembles throughout Western culture. Also of note is James Holland's book *Percussion* which provided information on timpani and percussion including history, instrument makers, and detailed descriptions of a great number of instruments with illustrations. This book focused primarily on Western percussion instruments as it concerns the orchestra. Another work already referenced, *Handbook of Percussion Instruments* by Karl Peinkofer and Fritz Tannigel, was originally published in German in 1969. It was translated into English by Kurt and Else Stone and republished in 1976. This work included photographs and detailed descriptions on the construction, characteristics, playing techniques, appropriate mallets, and selected historical information about individual percussion instruments. It also cited examples of a great number of standard and unusual instruments from the orchestral repertoire. Additionally this book included a list of Latin-American instruments in common orchestral use and possible substitutes. Such a list was especially relevant to percussion at the time of publication as the Latin instruments were newcomers to the orchestra in the mid 20th century. Blades wrote in his book, "Many of the percussion instruments of Latin-America now have a permanent place in serious compositions. In some cases, certain of these age-old instruments colour modern orchestration in a novel manner."⁴⁹

Finally, a 1970 book by Reginald Smith Brindle entitled *Contemporary Percussion* described the various instruments by classification (idiophone, membranophone, chordophone, and aerophone) and included characteristics of the instruments as well as characteristic uses and possibilities, including many musical examples from the modern orchestral repertoire. In addition, Brindle devoted part of his book to discussions of logistical concerns, percussion notation, timbral considerations, orchestral percussion and percussion ensemble.

Also contributing to the documented history of percussion were numerous dissertations written on percussion related topics ranging from examinations of specific composers and pieces to histories of individual percussion instruments. Worthy of mention because of its

⁴⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 426.

relevance to the history of percussion instruments in the orchestra is Guy Gregoire Gauthreaux II's dissertation, Orchestral Snare Drum Performance: An Historical Study. Published in 1989, Gauthreaux provided a descriptive history of the snare drum from its early pre-orchestral origins to the state of performance practice as it existed at the time of his dissertation.

A number of other dissertations and articles further highlight the contributions of specific composers frequently recognized as contributing to the advancement of the art of percussion. The 1967 dissertation by Peter Hyde Tanner examined contributions to the field of orchestral percussion by composer Hector Berlioz. Tanner, in his examination of Berlioz's contributions wrote, "The splendidly diverse array of solo effects created by this French composer [Berlioz] has been well-documented, and represents one of his most important contributions to the field of orchestration. Of the twenty different instruments of percussion utilized in the scores of Berlioz, not one fails to hold a prominent position in the total ensemble at some point or another."⁵⁰ Handel is also frequently recognized as an earlier composer who made notable contributions to percussion's involvement in the orchestra. In a Percussive Arts Society article, Jean Pollart credited Handel with the early use of the carillon in the orchestra. He wrote, "Handel could also be credited with other percussion innovations in his scoring. He originated the use of the carillon, or what would be the present day glockenspiel, in the orchestra."⁵¹

Igor Stravinsky has been credited with a number of percussion innovations. Bob Houston, in his article "A Summary of the Percussion Writing of Stravinsky," said that, "In treating the percussion in *Le Sacre du Printemps*, *Petrushka*, *L'Histoire du Soldat* and *Les Noces*, Stravinsky raised the percussion section to a level equal to that of the other orchestral families."⁵² Houston continued by saying that, "With respect to percussion development, Stravinsky was one of the first to give freedom to the percussion family. Stravinsky maintained

⁵⁰ Peter Hyde Tanner, Timpani and Percussion Writing in the Works of Hector Berlioz (The Catholic University of America, 1967), 249.

⁵¹ Gene J. Pollart, "The Use and Innovations of Percussion in the Works of J.S. Bach and Handel," *Percussionist* 13, no. 3 (1976): 79.

⁵² Bob Houston, "A Summary of the Percussion Writing of Stravinsky," *Percussionist* 16, no. 1 (1978):10.

a personal style in his percussion writing and often gave the percussion instruments parts which complemented and enhanced the overall musical quality of his compositions.”⁵³

Gustav Mahler has also often been singled out as an important composer in the development of percussion. Charles L. Seiler in his article, “Gustav Mahler and Percussion,” wrote, “Mahler helped to liberate the percussion section and raise it to solo importance. This can be seen in his timpani writing in practically all of his symphonies, his bass drum writing in the third symphony and his glockenspiel and xylophone writing in the sixth symphony. Mahler further introduced into the percussion section such unusual instruments as the rute (Symphonies No. 2 and 6), sleigh bells (Symphony No. 4), wooden hammer, used to imitate the sound of an ax stroke, (Symphony No. 6) and cowbells (Symphonies No. 6 and 7).”⁵⁴

Outside musical influences were also cited by many authors as contributing to the rapid assimilation of percussion instruments and specifically mallet instruments into the orchestra over a relatively short period of time. Mallet instruments were still developing during the beginning of the 20th century. However they made a relatively quick transition into the orchestra. Camille Saint-Saens’ use of the xylophone his *Dance Macabre* in 1874 is generally recognized as the first use of that instrument in an orchestral work. In discussing the state of xylophone writing less than 100 years later Blades wrote, “In recent years the ever-increasing complexity of writing has revolutionized the use of [the xylophone] as compared with the demands of earlier composers, who, with occasional exceptions, such as Stravinsky in *Les Noces*, asked only for short passages, repeated notes, etc., (often memorized).”⁵⁵ Other newly invented instruments of the early 20th century, such as the vibraphone, were soon being considered regular members of the ensemble. Robert Ricci speculated that this could have been partly due to outside influences on orchestral music. He wrote, “As one speaks of the keyboard percussion instruments, it seems important to mention the effect that new kinds of

⁵³ Bob Houston, "A Summary of the Percussion Writing of Stravinsky," *Percussionist* 16, no. 1 (1978):15.

⁵⁴ Charles L. Seiler, "Gustav Mahler and Percussion," *Percussionist* 13, no. 2 (1976):66.

⁵⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 405.

music in the twentieth century have had in bringing out unfamiliar potential in these familiar instruments. Among these are the pointillistic style, jazz and its various affiliates in the popular and rock idioms."⁵⁶

Method books, which were written and published in abundance through the past century, were also a good source of information regarding playing techniques and styles that developed along with part demands. Too numerous to mention here, method books are critical to the understanding of common and accepted techniques. However, some larger all-encompassing method publications are worth mentioning. Another work by James Blades entitled *Orchestral Percussion Technique*, published first in 1961 and updated in 1973, include detailed information about the techniques of playing the most standard percussion equipment. In addition to information about the percussion instruments including construction, common stick choices, and proper handling and playing techniques, Blades included historically relevant information and examples on how the various percussion instruments had been used well in pieces by a variety of composers through the ages. Blades also included an appendix of a selected list of works that feature percussion as well as works that feature timpani.⁵⁷

Similarly, the book *Scoring for Percussion* by H. Owen Reed and Joel T. Leach is a practical guide for composers and orchestrators. First published in 1969, this book presented the most essential information on percussion that orchestrators would need to know including; ranges of instruments, beaters appropriate to the instrument, and distinctive features of each particular instrument. This book covered all the common percussion instruments as well as many Latin and exotic instruments that had found their way into the orchestra by 1969. The second part of the book included essential information on percussion notation and scoring, and discussed many of the practical and logistical concerns that may not have been immediately obvious to non-percussionists. The newest in these types of books is a 2002 work entitled *How*

⁵⁶ Robert Ricci, "The Percussion Renaissance," *Percussive Notes* 10, no. 1 (1971): 20.

⁵⁷ James Blades, *Orchestral Percussion Technique* (London: Oxford University Press, 1973).

to Write for Percussion by Samuel Z Solomon. This book, like its predecessors, includes practical information about techniques of playing the instruments and takes a highly practical approach concerning logistics, physical limitations of players and instruments, and other such information that can directly influence the musical outcome of a piece. This book reflects many of the techniques that have become common to percussion in the past 50 years.

In addition to technique and scoring books, percussion dictionaries were a good reflection of instruments current in the repertoire. A standard dictionary, the *Dictionary of Percussion Terms as Found in the Symphony Repertoire* by Morris Lang and Larry Spivack, was first published in 1977 and republished in 1997. In accordance with languages typically associated with symphonic repertoire, translations of percussion instruments from German, French, Italian and Spanish were included. The authors also included information on instruments from other cultures, "...but only in so far as they are found in symphonic scoring."⁵⁸ The last section of the dictionary included translations of specific requests by composers of the repertoire.

Also of note as a resource for further historical percussion study is a publication compiled by Sherman Hong for the Percussive Arts Society in 1972. This publication provided a bibliographical list of books and articles in various fields of study relating to percussion including: acoustical studies, mallet keyboard studies, snare drum studies, timpani studies, special area studies, general percussion studies, article compilations, and books. This list is now dated but was a valuable marker of percussion scholarship as of 1972. Sherman Hong has also contributed, in a series of articles for the Percussive Arts Society, historical accounts of percussion. He wrote in his article "Percussion in the Orchestra 1750-1850 that, "It is from Beethoven and Berlioz that romantic composers take their cues. Percussion writing during the balance of the 19th century became steadily improved, albeit slowly, until it has reached the 20th

⁵⁸ Morris Lang and Larry Spivack, *Dictionary of Percussion Terms as Found in the Symphony Repertoire* (Brooklyn, N.Y.: Lang Percussion Inc., 1997), 2.

century level of equality with other instruments. It has been a long time coming, but now percussion literature **per se** has come of age."⁵⁹

Supporting the relevancy of the sources outlined in this chapter is a very recent article by James A. Strain from the Percussive Notes magazine which gives a short bibliography of several works that the Percussive Arts Society has sponsored or continues to sponsor through its databases and websites. Among the works mentioned are: *Solo and Ensemble Literature* by F. Michael Combs; the percussion research bulletin, a one-time publication from 1972 compiled by Sherman Hong; *The Drummer: Man*, a book by Gordon Peters based on his master's thesis; and an online research journal in which members can submit and read scholarly publications.⁶⁰

A final bibliographical resource on percussion writings is *Percussion: An Annotated Bibliography* by Dieter Bajzek. This work listed over 1400 bibliographical entries for writings primarily between the years 1965-1985 having to do with percussion. Bajzek divided the information into several categories including sections on general texts, instruction and performance for orchestral and popular music, percussion in history, and research and technology, to name a few. Appendices included lists of percussion magazines and other journals that regularly feature percussion-related articles.

An examination of the sources and texts listed in this chapter paint a picture of a percussion section that has experienced a significant evolution in the past half century. Increased awareness of the expanded use of percussion in orchestral compositions has changed perceptions of percussion and percussionists. Gangware said that, "The desire to produce an infinite number of sounds characterizes the use of the percussion section today. Composers are eagerly seeking new instruments in the percussion section and new sounds from the old instruments with which they might enhance the orchestral tone color. This is the

⁵⁹ Sherman Hong, "Percussion in the Orchestra," *Percussionist* 8, no. 4 (1971): 127.

⁶⁰ James A. Strain, "Auxiliary Pas Publications," *Percussive Notes* 49, no. 3 (2011): 18-20.

keynote of the use of percussion instruments in the twentieth century.”⁶¹ The momentum of this percussion movement does not seem to be slowing down. The changing roles of the individual percussion instruments as well as of the section as a whole are indicative of changes in the orchestral genre as a whole. The attention to timbre, the integration of instruments from a wide variety of world cultures including South America, and the fundamental switch of timpani and percussion from a supportive role to a solo capacity defined the state of percussion by 1960.

⁶¹ Edgar Brand Gangware, Jr., The History and Use of Percussion Instruments in Orchestral Music (Northwestern University, 1962), 249.

Chapter III

OPINIONS AND ATTITUDES REGARDING PERCUSSION DURING THE 19th AND EARLY 20th CENTURIES

Because the academic study of percussion is relatively new, very few books dedicated entirely to the functions and history of percussion were in existence before the 1960's. While method books are numerous and date back to the 17th and 18th centuries, information in published articles and books regarding percussion is a relatively new occurrence. Aside from a handful of encyclopedia entries, there were few widely available publications detailing the histories and potential of percussion instruments or continuing serious discussions about the state of percussion until the second half of the 20th century.

One consequence of this lack of available information about percussion were the attitudes towards percussion before its surge in popularity in the mid to late 20th century. These attitudes regarding percussion (i.e. standard and popular opinions of the day) were demonstrated in numerous orchestration guides and treatises. In a significant number of earlier orchestration texts, the percussion section was disparagingly referred to as the "kitchen of the orchestra." And many works warned against the dangers of the percussion section and dismissed the potential of the percussion instruments. These attitudes likely developed as a result of several factors including: a lack of familiarity with several outstanding uses of percussion in orchestra, unfamiliarity with the instruments and their possibilities; and the poor reputation of the percussion section.

While instruction on the function, possibility and limits of other instruments has been written about extensively, the potential of the percussion section had hardly been explored by the start of the 20th century. Orchestration texts from the 19th and early 20th century are extremely cautious about percussion. The most common advice in orchestration texts was to

use percussion sparingly. Among the authors recommending caution was Rimsky-Korsakov, ironically himself an innovator of percussion writing. In his *Principals of Orchestration*, Rimsky-Korsakov recommended economy with regard to percussion. His reasons were sound, stating that “A group of instruments that has been silent for some time gains fresh interest upon its reappearance.”⁶² However, Rimsky-Korsakov went on to say that, “... [The percussion instruments] have no intrinsic musical meaning, and are just mentioned by the way.”⁶³ This dismissive attitude towards the percussion instruments was not unique.

Another well-known orchestration text by Cecil Forsyth also assumed the unmusicality of unpitched instruments. Forsyth categorized the percussion instruments into two groups: “unmusical” and “musical.” While these labels distinguished instruments of indefinite pitch (“unmusical”) and definite pitch (“musical”), the terminology further perpetuated the idea that percussion instruments are not capable of or essential to musical ideas.⁶⁴ Forsyth went on to issue a strongly worded warning advising against the use of bass drum and cymbals. His words have been enough to scare many composers away from attempting this combination. He said, “The combination...of the soft two-plate-stroke with the *p* notes of the Bass-Drum is, despite Berlioz’s liking for it, rather poor and stupid.”⁶⁵ Forsyth also referred to percussion as “mere noise,”⁶⁶ again reinforcing the idea that percussion does not measure up to the other instruments of the orchestra.

Other orchestration books tended to be excessively restrictive in the imagined uses for percussion instruments and, in general, expressed wariness towards percussion. A 1931 book by Gordon Jacob gave such advice, advising that, “The use of the tambourine should be

⁶² Paul Mathews, ed., *Orchestration: An Anthology of Writings* (London: Routledge, 2006), 113.

⁶³ Nikolay Rimsky-Korsakov, *Principles of Orchestration: With Musical Examples Drawn from His Own Works* (New York: Kalmus, 1912), 33.

⁶⁴ Cecile Forsyth, *Orchestration* (London: Macmillan and Co., Limited, 1914), 23.

⁶⁵ *Ibid.*, 36. Forsyth seems to be mistaken, however. It is well documented that Berlioz did not like the combination of bass drum and cymbals and thought that the sound of each could be better achieved by a single player on each.

⁶⁶ *Ibid.*, 42.

confined to dance music or to music of a dance-like character.”⁶⁷ Jacob went on to say that, “Such things as the tenor drum, tubular bells, cow bells, jingles, castanets (useful for Spanish rhapsodies!), gong (sinister, solemn, Chinese), tabor (Old English), &c., &c., need not be spoken of in detail. Their function is to supply realism or local colour, and for these purposes their use is perfectly legitimate.”⁶⁸ Despite the apparently legitimate uses of percussion, Jacob still advised composers to be “...extremely sparing in their use.”⁶⁹ Percussion instruments often made their way into orchestral ensembles merely to add realism and local color. However, once these functions became commonplace, percussion instruments evolved into unassociated timbral options which remained unexplored by composers. Because of the lack of literature stating otherwise, many writers assumed that no better purpose could be served by these instruments.

Another example of the pre-assumed role of percussion instruments comes from a 1959 book by Joseph Wagner called *Orchestration; a Practical Handbook*. This work was a rather late example of an orchestration book that took percussion into consideration only by assessing how it might enhance other orchestral instruments. Mr. Wagner said, “Percussion instruments are of value only when they can add dimensions of timbre and nuance unobtainable from the other sections...They are strictly supplementary instruments with limited tonal definition which, in turn, affects their scoring values.”⁷⁰ This type of attitude was pervasive in orchestral writing and teaching before 1960.

For some writers, it was easier to shy away from or ignore the subject of percussion rather than to deal with it. Another well-known orchestration text from 1899 by Ebenezer Prout refrained from discussing percussion aside from the advice that “Much variety of colour is often obtained by the *judicious* use of percussion instruments. We emphasize the word ‘judicious’

⁶⁷ Gordon Jacob, *Orchestral Technique* (London: Oxford University Press, 1931), 72.

⁶⁸ Ibid, 72.

⁶⁹ Ibid, 72.

⁷⁰ Joseph Frederick Wagner, *Orchestration; a Practical Handbook* (New York: McGraw-Hill Book Company, Inc., 1959), 251.

because the beginner may be tempted to employ these instruments in season and out of season, and there is nothing which more readily vulgarizes a score than such a procedure.”⁷¹

The writers of these early orchestration texts were not entirely to blame for their wariness about percussion, however. Many percussion instruments were still in various states of development and improvement, and the poor quality of instruments may have been to blame for unmusical sounds emanating from the section. Despite these technical limitations, however, various composers in the earlier part of the 20th century tried to imagine the possibilities of percussion if the instruments could be expanded and if improvements could be made.⁷²

The reputation of percussionists also came into question many times throughout music history. Orchestration books were full of stories and anecdotes such as the following by a conductor:

During a recent recording session in Berlin I was having a difficult time getting an accurate reading of an arrangement by the xylophone, vibes and percussion. It seems they spent the first two run-throughs lining up all of their gear, and it was a mess to say the least. Finally I said, “Let’s try it this time, and percussion please watch your entrances.” (I was being rather polite.) We were all ready to record so I thought we’d risk a take.

Well, we did it and it was a disaster. It occurred to me that perhaps the copyist left out some bars but that was not the case. I found myself getting a little up-tight and just then the orchestra contractor came over to the podium and said in a hushed voice, “You must not be too hard on them. After all, they are only drummers!”⁷³

Such stories were often issued as warnings about what to expect from percussionists and upheld the traditional view that percussion was something best to be avoided.

Comments by Stewart Frank Howes in his work, *Full Orchestra*, also disparaged the quality of playing by percussionists. He said, “Speaking generally all percussion instruments are capable of more discriminating playing that they normally get in English symphony

⁷¹ Ebenezer Prout, *The Orchestra* (London: Augener & Co., 1899), 150.

⁷² Articles by Ferruccio Busoni and Percy Grainger published in the Paul Mathews, *Orchestration: An Anthology of Writings*, point to such a conclusion.

⁷³ John Cacavas, *Music Arranging and Orchestration* (NY: Belwin-Mills Publishing Corp., 1975), 90.

orchestras. Since their function is mainly decorative there is no reason why they should not invariably perform it with exquisite elegance.”⁷⁴

Percussion programs at conservatories and music schools developed much later than programs for other instruments. The historic lack of properly trained percussionists may have fueled the early critical attitudes towards percussion playing. However, circumstances beyond percussionists' control and for which percussionists were often blamed contributed to the poor reputation of the section. A 1906 work by Charles-Marie Widor concerning orchestral technique and instrumentation acknowledged that, at least in some cases, mistakes by percussionists were not always their fault, but rather the fault of negligent composers. Widor said that, “It frequently happens that, at a first rehearsal, the performer is embarrassed by the composer having neglected to indicate the changes of key beforehand; it will be the drummer's business to study and arrange the proper changes for the next rehearsal. In such a case I think the composer is somewhat to blame.”⁷⁵ Regardless of who was to blame, percussionists worked for years to try to overcome the stereotypes of our section.

The timpani, in general, received a somewhat kinder treatment than percussion in orchestration texts due to the long history of timpani in the orchestra and due to the ability to tune timpani to various pitches. However, even changes in timpani use encountered resistance. In his comprehensive history of the timpani, Edmund Bowles contended that “Even musicologists and instrument historians have tended to give timpani short shrift, compared to the serious studies devoted to other standard but often less venerable orchestral types.”⁷⁶ As with other percussion instruments, the changes in tradition or function of timpani were often regarded with hostility. F. Castel-Blaze in an 1885 publication wrote, “To add two timpani [to the

⁷⁴ Steward Frank Howes, *Full Orchestra* (London: Secker & Warburg, 1942), 64-65.

⁷⁵ Charles-Marie Widor, *The Technique of the Modern Orchestra; a Manual of Practical Instrumentation* (London: Joseph Williams, Limited, 1906), 101.

⁷⁶ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 7.

two already in the orchestra] is to wish to create a jam and nothing more; this childish addition has no other result than that of congesting the orchestra.”⁷⁷

As with percussion playing, the quality of timpani playing also came under scrutiny. An 1809 comment from the *Allgemeine Musikalische Zeitung* stated, “As far as the orchestras are concerned (Milan, Venice and, in any case, Naples excepted, however) we wish to repeat some of those remarks...no one knows how to play timpani.”⁷⁸ Poor drum quality, which was an issue in 1809 before the advent of machine timpani, probably contributed to the poor sound of the instrument. Berlioz was known to have lamented the failure on the part of composers to indicate their stick preferences for timpani. Regardless of the causes, timpanists, like percussionists, often suffered a poor reputation.

Fortunately, the general improvement of timpani and percussion instruments helped to make orchestrators less wary of the instruments. However, the general attitude towards timpani improved more quickly than the attitude towards percussion. Compliments aimed at timpani were often at the expense of percussion. Mr. Howes’ 1942 book stated of the instruments, “Of this motley company the only instrument of serious and permanent musical value, an integral part of the texture and not a mere decoration upon it, is the set of kettle-drums with their notes of definite pitch and their capacity for fine nuances of tone and expression.”⁷⁹ Generally the longer history of timpani in the orchestra and their ability to achieve pitches seemed to be the basis for the assumed superiority of the timpani over percussion. Joseph Wagner wrote that, “Inasmuch as the timpani have been an integral part of the orchestra practically since its inception, the student orchestrator should consider them as musical instruments and not as supplementary ‘noise makers.’ Although percussive to a degree, they do not belong to the

⁷⁷ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 482.

⁷⁸ *Ibid.*, 472.

⁷⁹ Frank Stewart Howes, *Full Orchestra* (London: Secker & Warburg, 1942), 58.

same category as the other percussion instruments, which are decidedly more limited and prescribed in their usage.”⁸⁰

Not all orchestration writings about timpani and percussion prior to 1960 were negative. One of the earliest proponents of the possibilities of timpani and percussion was Hector Berlioz, who also wrote one of the earliest and most respected treatises on orchestration. Berlioz, in an excerpt from his 1844 *Treatise on Instrumentation*, described his ideal large orchestra of 825 musicians. He imagined what might happen:

By combining the 30 pianofortes with the 6 sets of small bells, the 12 pairs of ancient cymbals, the 6 triangles (which might be tuned in different keys like the cymbals) and the 4 crescents into a metallic percussion orchestra – gay and brilliant expression in *mezzoforte*; By combining the 8 pairs of kettledrums with the 6 drums and the 3 bass drums into a small, almost exclusively rhythmic percussion orchestra – menacing expression in all shadings; By combining the 2 gongs, the 2 bells and the 8 large cymbals with certain chords of the trombones – sad and sinister expression in *mezzoforte*.⁸¹

Berlioz was obviously not shy about using percussive sounds. Unfortunately it took more than a century for the attitudes of most other writers to change. Several groundbreaking parts by innovative composers like Stravinsky and Bartok were necessary to influence the general opinion towards percussion. Recognizing the changes taking place in orchestral writing, Stravinsky stated in a conversation with Robert Craft, “Though the standard orchestra is not yet an anachronism, perhaps, it can no longer be used except by anachronistic composers.”⁸² Stravinsky’s forward-thinking attitude and recognition that the orchestra had to evolve influenced later writers of orchestration texts to imagine what the future of percussion might hold, emphasizing its possibilities rather than its limits.

Later publications, such as a 1965 work by Christopher Headington, acknowledged their predecessors’ fears, saying, “Books on orchestration usually warn students of the danger of too much use of percussion – a quiet roll on a cymbal is probably much more effective than

⁸⁰ Joseph Frederick Wagner, *Orchestration; a Practical Handbook* (New York: McGraw-Hill Book Company, Inc., 1959), 259.

⁸¹ Paul Mathews, ed., *Orchestration: An Anthology of Writings* (London: Routledge, 2006), 74.

⁸² *Ibid*, 148.

prolonged clashing and crashing. But the use of percussion, as of all orchestral instruments, is governed by one rule only – the composer’s instinct for what is right at a particular moment.”⁸³ The advice contained in these later books did not encourage students to use every instrument in every piece, but did encourage students to experiment. In his 1951 book, *The Art of Orchestration*, Bernard Rogers offered the sage advice that “The student must study these instruments ‘from life,’ and by consulting players.”⁸⁴ Rogers also acknowledged prior warnings, stating that, “In one sense the old view is correct: frequent use of percussion (especially *forte*) soon becomes banal and vulgar. But for the sensitive tone painter these instruments will prove an ally and a friend.”⁸⁵ These attitudes in part remain true today. Blades writes, referring to well written if sparse percussion parts, “This economy in the use of percussion so often proves the master: the use of the crotales, a pair in E flat – in Massenet’s *Hérodiade* (1881), the single stroke on the tam-tam in Tchaikovsky’s Sixth Symphony (*Pathétique*), the solitary clash of cymbals (*mf*) in Dvořák’s *New World*, and the gentle solo on the timpani to open his Slavonic Rhapsody No. 1, or, the rare but extremely effective use of the cymbals by Bruckner.”⁸⁶

As the general attitude began to change mid-century, a greater enthusiasm in orchestration books for percussion became apparent. George Frederick McKay, in his 1963 book, *Creative Orchestration*, recognized the possible directions orchestral writing might take, saying “Throughout the future the fundamental need for new tonal interest will stimulate a search for new resources in timbre differentiation...new techniques still in early stages of exploration are: fuller and more subtle use of percussion instruments.”⁸⁷ A 1969 contribution to the subject entitled, *Scoring for Percussion*, by H. Owen Reed and Joel T. Leach, assessed the state of percussion writing as follows:

⁸³ Christopher Headington, *The Orchestra and its Instruments* (London: Bodley Head, 1965), 51.

⁸⁴ Bernard Rogers, *The Art of Orchestration; Principles of Tone Color in Modern Scoring* (New York: Appleton Century-Crofts, 1951), 72.

⁸⁵ *Ibid.*, 77.

⁸⁶ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 323.

⁸⁷ George Frederick McKay, *Creative Orchestration* (Boston: Allyn and Bacon, 1963), 177.

As the stringed and wind instruments are borrowing from the percussion sounds, so too are the percussion instruments borrowing from the melodic sounds. This melodic thinking has of course always been associated with the mallet percussion instruments, but recently there has been an increased awareness of the melodic (or simulated melodic) possibilities inherent in the percussion instruments of *indefinite* pitch.⁸⁸

The opinions of McKay, Reed, and Leach were a far cry from the sentiments commonly expressed less than 60 years earlier. The possibilities for percussion were rapidly expanding by the 1960's.

Embracing the new optimism towards the percussion section, mid-century percussionists seemed eager to change their professional reputation. In the introduction to his 1970 book *Contemporary Percussion*, Reginald Smith Brindle wrote, "Percussion players, who not long ago were regarded as the dunderheads of the orchestra, have had to step forward almost overnight and perform feats of virtuosity. The previous paucity of orchestral percussion instruments has rapidly given way to profusion of novel instruments, some of them still in a state of evolution."⁸⁹

Using similar terminology to Brindle, James Holland wrote in his 1978 work, *Percussion*, "Percussion players were at one time regarded as a lot of dunderheads by most other musicians, and from meeting colleagues in many countries it would appear that this attitude was quite widely held. But as percussion has changed, so have the attitudes, and the majority of other musicians today regard percussionists as equals rather than inferiors."⁹⁰ Following a similar train of thought, Gordon Peters, in his work, *The Drummer Man*, made a plea for the continued development of percussion ensemble programs in universities "To promote a change in the erroneous traditional attitude that percussion is not as important as the other sections of the orchestra."⁹¹

By 1960, percussion was prime for development. The concept of solo multiple-percussion had recently been developed. Percussion ensemble music was about to find

⁸⁸ H. Owen Reed and Joel T. Leach, *Scoring for Percussion and the Instruments of the Percussion Section* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1969), 129.

⁸⁹ Reginald Smith Brindle, *Contemporary Percussion* (London: Oxford University Press, 1970), 1.

⁹⁰ James Holland, *Percussion* (London: Macdonald and Jane's, 1978), 196.

⁹¹ Gordon B. Peters, *The Drummer Man: A Treatise on Percussion* (Lawton, OK: Percussive Arts Society, 2003), 190.

renewed interest through commissions of university programs and through the development of professional percussion ensembles. Following the tonal experiments of the first half of the 20th century, composers were looking for new areas of exploration. They would find such opportunities in the previously unexplored frontier of percussion timbres, highly developed mallet instruments, and a nascent interest in the use of percussion instruments from cultures the world over.

Chapter IV

EXPLANATION OF CASE STUDIES, FORMAT, AND DEFINITIONS OF TERMS

The preceding chapters outlined the history of percussion's role in the orchestra and the changing attitudes towards percussion in the first half of the 20th century. In order to gain a broader understanding of the path that orchestral percussion writing took in the second half of the 20th century, this study analyzed a substantial sample of orchestral pieces written since 1960. The study began with what is already known about the integration of percussion instruments into the orchestra and the state of individual percussion instruments from 1900 to 1960. The study then examined percussion parts from a representative list of composers that scored extensively for percussion between the years of 1960-2009. The works studied reflect the styles of several composers while specifically targeting pieces with large percussion forces, either in number of players or in the number of percussion instruments.

This is not a stylistic analysis of any one particular composer. The research instead focuses on the state of percussion writing in the past half century with regard to the occurrence and frequency of such factors as percussion instrumentation (new or unusual instruments or lack of standard instrumentation), new or unusual playing techniques, multi-percussion in the orchestra, detail of composer instruction, soloistic moments, and percussion ensemble in the orchestra. By examining a large number of works, the author's intent was to discover which specific trends have continued over a period of time, the extent of such trends, and how popular they seem to be. The author also examined whether any new, previously unknown innovations have been introduced into general practice and into the acceptance of percussion writing.

EXPLANATION OF CASE STUDIES

A number of factors influenced which composers and works were chosen for this project. This project first looked at composers whose works contain significant or well known percussion parts in pieces composed since 1960. All composers on the list are represented in Raynor Carroll's *Guide to Symphonic Repertoire or Percussion Orchestrations*, a website designed by British percussionist Ed Cervenka, that suggests percussion assignments for various orchestral works. Those guides reflect what could be considered a standard orchestral repertoire concerning percussion.

Many of the composers whose works are represented on the list are winners of various awards and honors, including the *Pulitzer Prize for Music*, the *Grawemeyer Award*, the *Kennedy Center Friedheim Award*, *Guggenheim Fellows*, and the *Rome Prize*. The list obviously cannot include every composer who has written an orchestral composition that includes percussion in the past 50 years, but the list is meant to include a significantly representative number of composers who have made important or noteworthy contributions to orchestral percussion parts over the past half century.

This project focused on composers whose contributions occurred primarily after 1960. Many composers who made significant or noteworthy contributions to percussion writing, such as Igor Stravinsky and William Walton, were still alive and even active as of 1960. However, for the purposes of this study, they were excluded from this list, which was meant to focus on those composers mostly active in the latter part of the century. To ensure that the representative sample was as broad and varied as possible, the project limited the number of compositions chosen per composer to two.

Compositions Alphabetically By Composer

- Adams, John
Chairman Dances (1985)
Naïve and Sentimental Music (1998)
- Adès, Thomas:
Asyla (1997)
Concerto for Violin (2005)
- Barber, Samuel:
Andromache's Farewell (1962)
Essay No. 3 for Orchestra (1978)
- Berio, Luciano:
Sinfonia (1968-69)
- Bernstein, Leonard:
Chichester Psalms (1965)
Symphony No. 3 "Kaddish" (1961-63)
- Birtwistle, Harrison:
Exody "23:59:59" (1997)
The Triumph of Time (1972)
- Boulez, Pierre:
Notations (1978)
Le Visage Nuptial (1951-1989)
- Brant, Henry:
Ice Field (2001)
- Britten, Benjamin:
War Requiem (1961)
- Carter, Elliot:
Concerto for Orchestra (1969)
- Colgrass, Michael:
As Quiet As (1965-66)
- Corigliano, John:
Gazebo Dances (1980-81)
Symphony No. 1 (1989)
- Crumb, George:
Echoes of Time and the River (1967)
- Tredici, David Del:
An Alice Symphony (1969; revised 1976)
- Druckman, Jacob:
Aureole (1979)
Prism for Orchestra (1980)
- Dun, Tan:
Death and Fire (1995)
- Dutilleux, Henri:
Cinq Métaboles (1965)
- Erb, Donald:
The Seventh Trumpet (1969)
- Feldman, Morton:
In Search of an Orchestration (1967)
- Ferneyhough, Brian:
Plotzlichkeit (2006)
- Ginastera, Alberto:

- Cantata para America Mágica (1960)
Concerto for Violin and Orchestra (1963)
- Glass, Philip:
Symphony No. 4 Heroes (1996)
- Gorecki, Henryk-Mikolaj:
Slave, Sidus Polonorum (1997-2000)
- Gould, Morton:
Symphony of Spirituals (1975)
- Harbison, John:
Symphony No. 1 (1980-81)
Symphony No. 2 (1986-87)
- Harrison, Lou:
Symphony No. 4 "Last Symphony" for Baritone and Orchestra (1990)
- Henze, Hans Werner:
Heliogabalus Imperator (1971-72; revised 1986)
Symphony 9: M 1001 (1995-97)
- Higdon, Jennifer:
Violin Concerto (2009)
- Hovhaness, Alan:
Floating World: Ballade for Orchestra (1964)
Symphony No. 19, "Vishnu" (1966)
- Husa, Karl:
Mosaiques (1960)
- Knussen, Oliver:
Flourish With Fireworks (1988)
The Way to Castle Yonder (1988)
- Kraft, William:
Contextures: Riots-Decade '60 (1967)
Interplay (1982; revised 1984)
- Kurtag, Gyorgy:
...quasi una fantasia...for Piano and Groups of Instruments (1988)
- Ligeti, Gyorgy:
Atmospheres (1961)
Macabre Collage for Large Orchestra (1974-77; revised 1991)
- Lindberg, Magnus:
Cantigas (1998-99)
Kraft (1983-85)
- Lutoslawski, Witold:
Concerto for Cello and Orchestra (1970)
Les Espaces du Sommeil (1975)
- Messiaen, Olivier:
Des Canyons aux Etoiles (1970-74)
Éclairs sur L'au-dela (1988-92)
- Panufnik, Andrzej:
Symphony No. 8, Sinfonia Votiva (1980-81)
- Penderecki, Kyzysztof:
Fluorescences (1962)
- Persichetti, Vincent:
Night Dances for Orchestra (1970)
- Piston, Walter:
Symphony No. 7 (1960)

- Rands, Bernard:
Body and Shadow (1988)
- Reich, Steve:
The Desert Music (1984)
Tehillim (1981)
- Rouse, Christopher:
Gorgon (1984)
- Saariaho, Kaija:
A la Fumée (1990)
Orion (2002)
- Salonen, Esa-Pekka:
Insomnia (2002)
- Schnittke, Alfred:
Concerto No. 2 for Cello and Orchestra (1990)
Concerto for Viola and Orchestra (1985)
- Schuller, Gunther:
Four Soundscapes for Orchestra (1975)
- Schwantner, Joseph:
Concerto for Percussion and Orchestra (1994)
A Play of Shadows: Fantasy for Flute and Orchestra (1990)
- Sessions, Roger:
Concerto for Violin, Cello and Orchestra (1971)
Symphony No. 6 (1966)
- Shchedrin, Rodion:
Concerto No. 4 for Orchestra, "Roundelays" (1989)
Old Russian Circus Music: Concerto No. 3 for Orchestra (1990)
- Stockhausen, Karlheinz:
Michael's Greeting (1978)
- Stucky, Steven:
Concerto No. 2 for Orchestra (2003)
- Takemitsu, Toru:
From me flows what you call Time (1990)
Twill by Twilight (1988)
- Tcherepnin, Alexander:
Piano Concerto No. 5 (1963)
- Tippett, Michael:
The Rose Lake, A Song Without Words for Orchestra (1991-93)
Symphony No. 4 (1976-77)
- Tower, Joan:
Sequoia (1981)
Silver Ladders (1986)
- Turnage, Mark-Anthony:
Your Rockaby (Concerto for Soprano Saxophone and Orchestra (1992-93)
- Wuorinen, Charles:
Movers and Shakers (1984)
- Zwilich, Ellen Taaffe:
Symphony No. 3 (1992)
Symphony No. 4 "The Gardens" (1999)

Compositions By Year

- 1960
 Ginastera, Alberto: Cantata para America Mágica (1960)
 Husa, Karl: Mosaiques (1960)
 Piston, Walter: Symphony No. 7 (1960)
- 1961
 Britten, Benjamin: War Requiem (1961)
 Ligeti, Gyorgy: Atmospheres (1961)
- 1961-63
 Bernstein, Leonard: Symphony No. 3 "Kaddish" (1961-63)
- 1962
 Barber, Samuel: Andromache's Farewell (1962)
 Penderecki, Kyzysztof: Fluorescences (1962)
- 1963
 Ginastera, Alberto: Concerto for Violin and Orchestra (1963)
 Tcherepnin, Alexander: Piano Concerto No. 5 (1963)
- 1964
 Hovhaness, Alan: Floating World: Ballade for Orchestra (1964)
- 1965
 Bernstein, Leonard: Chichester Psalms (1965)
 Dutilleux, Henri: Cinq Métaboles (1965)
- 1965-66
 Colgrass, Michael: As Quiet As (1965-66)
- 1966
 Hovhaness, Alan: Symphony No. 19, "Vishnu" (1966)
 Sessions, Roger: Symphony No. 6 (1966)
- 1967
 Crumb, George: Echoes of Time and the River (1967)
 Feldman, Morton: In Search of an Orchestration (1967)
 Kraft, William: Contextures: Riots-Decade '60 (1967)
- 1968-69
 Berio, Luciano: Sinfonia (1968-69)
- 1969
 Carter, Elliot: Concerto for Orchestra (1969)
 Erb, Donald: The Seventh Trumpet (1969)
- 1970
 Lutoslawski, Witold: Concerto for Cello and Orchestra (1970)
 Persichetti, Vincent: Night Dances for Orchestra (1970)
- 1970-74
 Messiaen, Olivier: Des Canyons aux Etoiles (1970-74)
- 1971
 Sessions, Roger: Concerto for Violin, Cello and Orchestra
 (1971)
- 1972
 Birtwistle, Harrison: The Triumph of Time
 (1972)
- 1975
 Gould, Morton: Symphony of Spirituals (1975)
 Lutoslawski, Witold: Les Espaces du Sommeil (1975)
 Schuller, Gunther: Four Soundscapes for Orchestra (1975)

- 1976
Del Tredici, David: An Alice Symphony (1969; revised 1976)
- 1976-77
Tippett, Michael: Symphony No. 4 (1976-77)
- 1978
Barber, Samuel: Essay No. 3 for Orchestra (1978)
Boulez, Pierre: Notations (1978)
Stockhausen, Karlheinz: Michael's Greeting (1978)
- 1979
Druckman, Jacob: Aureole (1979)
- 1980
Druckman, Jacob: Prism for Orchestra
(1980)
- 1980-81
Corigliano, John: Gazebo Dances (1980-81)
Harbison, John: Symphony No. 1 (1980-81)
Panufnik, Andrzej: Symphony No. 8, Sinfonia Votiva (1980-81)
- 1981
Reich, Steve: Tehillim (1981)
Tower, Joan: Sequoia (1981)
- 1983-85
Lindberg, Magnus: Kraft (1983-85)
- 1984
Kraft, William: Interplay (1982; revised 1984)
Reich, Steve: The Desert Music (1984)
Rouse, Christopher: Gorgon (1984)
Wuorinen, Charles: Movers and Shakers (1984)
- 1985
John Adams: Chairman Dances (1985)
Schnittke, Alfred: Concerto for Viola and Orchestra (1985)
- 1986
Henze, Hans Werner: Heliogabalus Imperator (1971-72;
revised 1986)
Tower, Joan: Silver Ladders (1986)
- 1986-87
Harbison, John: Symphony No. 2 (1986-87)
- 1988
Knussen, Oliver: Flourish With Fireworks (1988)
Knussen, Oliver: The Way to Castle Yonder (1988)
Kurtag, Gyorgy: ...quasi una fantasia...for Piano and Groups of
Instruments (1988)
Rands, Bernard: Body and Shadow (1988)
Takemitsu, Toru: Twill by Twilight (1988)
- 1988-92
Messiaen, Olivier: Éclairs sur L'au-dela (1988-92)
- 1989
Boulez, Pierre: Le Visage Nuptial (1951-1989)
Corigliano, John: Symphony No. 1 (1989)
Shchedrin, Rodion: Concerto No. 4 for Orchestra,
"Roundelays" (1989)
- 1990

- Harrison, Lou: Symphony No. 4 "Last Symphony" for Baritone and Orchestra (1990)
- Saariaho, Kaija: A la Fumée (1990)
- Schnittke, Alfred: Concerto No. 2 for Cello and Orchestra (1990)
- Schwantner, Joseph: A Play of Shadows: Fantasy for Flute and Orchestra (1990)
- Shchedrin, Rodion: Old Russian Circus Music: Concerto No. 3 for Orchestra (1990)
- Takemitsu, Toru: From me flows what you call Time (1990)
- 1991
Ligeti, Gyorgy: Macabre Collage for Large Orchestra (1974-77; revised 1991)
- 1991-93
Tippett, Michael: The Rose Lake, A Song Without Words for Orchestra (1991-93)
- 1992
Zwilich, Ellen Taaffe: Symphony No. 3 (1992)
- 1992-93
Turnage, Mark-Anthony: Your Rockaby (Concerto for Soprano Saxophone and Orchestra (1992-93)
- 1994
Schwantner, Joseph: Concerto for Percussion and Orchestra (1994)
- 1995
Dun, Tan: Death and Fire (1995)
- 1995-97
Henze, Hans Werner: Symphony 9: M 1001 (1995-97)
- 1996
Glass, Philip: Symphony No. 4 Heroes (1996)
- 1997
Adès, Thomas: Asyla (1997)
Birtwistle, Harrison: Exody "23:59:59" (1997)
- 1997-2000
Gorecki, Henryk-Mikolaj: Slave, Sidus Polonorum (1997 2000)
- 1998-99
Lindberg, Magnus: Cantigas (1998-99)
- 1998
John Adams: Naïve and Sentimental Music (1998)
- 1999
Zwilich, Ellen Taaffe: Symphony No. 4 "The Gardens" (1999)
- 2001
Brant, Henry: Ice Field (2001)
- 2002
Saariaho, Kaija: Orion (2002)
Salonen, Esa-Pekka: Insomnia (2002)
- 2003
Stucky, Steven: Concerto No. 2 for Orchestra (2003)
- 2005
Adès, Thomas: Concerto for Violin (2005)

2006

Ferneyhough, Brian: Plotzlichkeit (2006)

2009

Higdon, Jennifer: Violin Concerto (2009)

FORMAT

This project's criteria for each piece examined (i.e. percussion instrumentation, playing techniques, multi-percussion, composer instruction, soloistic moments, and percussion ensemble) followed the format of the chart on the following page:

Piece: Composer: Year:
Number of Players Called For: Number of Individual Instruments Required (Timpani Considered 1 Instrument): Setup Diagram Included? Multi-Percussion Required?
Standard Percussion Battery? <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> • <i>Solo Passages?</i>
Standard Mallet Battery? <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> • <i>4-Mallet Technique?</i> • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> • <i>Difficult Pedaling Technique Involved?</i> • <i>Solo Passages?</i>
Effect Instruments? <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> • <i>Solo Passages?</i>
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> • <i>Are More Than 4 Drums Required?</i> • <i>Does it Require Extensive Tuning?</i> • <i>Would Tuning Gauges Be Necessary?</i> • <i>What is the Range of Tunings Required Throughout the Piece?</i> • <i>Solo Passages?</i>
Standard Latin Battery? <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> • <i>Solo Passages?</i>
Other Ethnic or Unusual Instruments?
“Found” Instruments?
Does the Section Operate as a Percussion Ensemble?
General Comments: <ul style="list-style-type: none"> •

DEFINITIONS

The following definitions shall apply universally throughout this study:

Standard Percussion Battery:

The standard percussion battery is, for the purposes of this dissertation, defined as the instruments of the percussion section that are most commonly found in the orchestral repertoire. These instruments include the triangle, snare drum, tenor drum, tom-toms, bass drum, cymbals, tambourine, and tam-tam. Most of these instruments, with the exception of the tom-toms, have the longest history of any percussion instruments in orchestral music. Because of their long histories in the orchestra, these instruments have lost their original associations with any particular “exotic” idea, including foreign music, peoples, or countries. Furthermore, these instruments are listed as typical percussion section instruments by the largest number of orchestration, instrumentation, and history books. The terms “gong” and “tam-tam” are often used interchangeably by composers. Generally, unless the composer has specified that the gong has a particular pitch, it is assumed that the composer means “tam-tam.”

Standard Mallet Battery:

The standard mallet battery includes all standard model/size mallet instruments that are available for purchase and found in virtually every orchestra and university. These instruments include the vibraphone (or vibraharp), glockenspiel, marimba (or marimbaphone), xylophone, Xylorimba, crotales (or antique cymbals), bell plates, and chimes (or tubular bells). In his work, *Compendium of Modern Instrumental Techniques*, Gardner Read points out the possibility of extended ranges for percussion, but also points out that it is not feasible to write orchestral

music for the extended range instruments as they are not standardized across the percussion world.⁹² It would be a rare occurrence for a composer to write for an extended mallet range.

Auxiliary/Effect Instruments:

The auxiliary or effect instruments include any instruments that are used as sound effects and any of the other small “toys” found in the percussion section. Many of these instruments have long histories in opera pits during the 18th and 19th centuries, and all such instruments can still be used in the context of their original associations or sound imitation, or as an independent unassociated timbre. Among these instruments are the bell tree, mark tree (or wind chimes), woodblocks, temple blocks, slapstick, ratchet, log drums, sandpaper blocks, castanets, almglocken/cowbells, Flexatone, sirens, sleigh bells, wind machine, thunder sheet, lion’s roar, horns/whistles, ocean drums (or geophone), finger cymbals, and anvils.

Standard Latin Battery:

The standard Latin battery is comprised of any instruments that came from Central or South America. Latin battery instruments were introduced into orchestral music through their associations with dance, various Latin beats, and Latin ensembles. These instruments, when currently used in orchestral music, are often used without these original associations. These instruments include claves, bongos, congas, timbales, maracas, guiro, shakers, Quica, Cabasa, and jawbone (vibraslap).

Other Ethnic/Unusual Instruments:

Other ethnic instruments or unusual instruments include instruments from other cultures that do not have a historical place in orchestral music. Examples would be a taiko from Japan or a bodhràn from Ireland.

⁹² Gardner Read, *Compendium of Modern Instrumental Techniques* (Westport, Conn.: Greenwood Press, 1993), 10.

“Found” Instruments:

These instruments, which might be used as sound effects or as unassociated timbres, are distinct from the auxiliary instruments because these instruments are often considered household objects or “junk” and are typically not manufactured by any specific company. Often when playing these instruments it is the responsibility of the player to locate the objects or desired sound. Examples include brake drums (from cars), teacups, and generic requests such as “metal sounds” or “large pieces of wood.”

Multi-Percussion:

The concept of "multiple-percussion" (or “multi-percussion”) is a relatively new one. While it certainly was not uncommon for percussionists in orchestras to play more than one instrument at a time during the 19th and early 20th centuries, multiple percussion in an ensemble capacity did not appear until 1918 with Igor Stravinsky’s small ensemble piece, *L’Histoire du Soldat*. What set Stravinsky’s work apart from previous works is that one percussionist was expected and required to play multiple instruments. However, it was not just a matter of a single player first playing a snare drum and then playing a bass drum. The part was written so that all the instruments appear on a single staff and are integrated into a singular musical idea which is the percussion part (as opposed to the percussion *parts*).

There are several individual factors that must come together to constitute a part as being written for multiple-percussion. First is the expectation that several instruments are to be played by one player. This is different than, for example, a piece in which there are several individual percussion parts that can be covered by fewer players than there are instruments for which the score was written. An example of a score that does not represent multiple-percussion would be Ottorino Respighi’s work, *The Pines of Rome*. In that work, the glockenspiel player can move to the bass drum after the first movement and the tambourine player can move to the tam-tam

after the first movement. Such sequential playing of multiple instruments does not constitute multiple-percussion.

A second factor that must be considered when assessing if a part can be considered multi-percussion is whether or not a specialized setup must be contrived (either by the composer or the player) in order to be able to play the various instruments required. When writing *L'Histoire du Soldat*, Stravinsky contrived of a percussion setup which then influenced the way he wrote the drum part on the staff. However, some composers prefer to write the percussion parts and then decide afterwards how many percussionists are needed. In his work *Contemporary Percussion*, Reginald Smith Brindle writes,

In theory, a composer should decide how many percussion players he is going to use before he begins to write. But this is not always easy. Often enough a decision can only be made after the music has been written, in which case the percussion parts will have to be re-written for whatever number of players is necessary. However, when a composer does wish to decide how many players he will need, there are several issues to be considered. It is not only a question of the number of notes or number of instruments to be played.⁹³

Brindle went on to describe situations that require more than one player, citing situations in which, "Several instruments have to be played together or in quick succession with a force which is beyond the physical possibilities of one player...complex rhythmic patternings on a number of instruments..."⁹⁴ and situations, "When a number of instruments have to be played simultaneously, or in such quick succession that one player could not reach them."⁹⁵ Brindle also points out that using one player for many parts is preferable for reasons of economy, precision and style.

For the purposes of this dissertation, the author's judgment regarding whether or not a work requires multi-percussion was based on the following factors: 1) An examination of the distribution of percussion parts among a reasonable number of players taking into account recommendations by Raynor Carroll in his repertoire guide and recommendations by Ed

⁹³ Reginald Smith Brindle, *Contemporary Percussion* (London: Oxford University Press, 1970), 20.

⁹⁴ Ibid.

⁹⁵ Ibid.

Cervenka on his percussion orchestration website; 2) An assessment as to whether the individual parts required a specially contrived setup by the composer or the player in order to work; and 3) A determination of if the individual part worked as a musically integrated whole.

Percussion Ensemble in Orchestra:

Percussion ensemble in the orchestra is also a relatively new concept. The percussion ensemble in its solo form was developed in the early 1930's with such pieces as Edgar Varèse's 1931 piece *Ionisation* and the 1930 work *Ritmicas no.5 and no. 6* by Amadeo Roldán. As the idea that percussion, as a solo unit, could convey melodies and themes developed throughout the 1930's, composers began to incorporate percussion ensembles into compositions, entrusting the percussion section with solo passages in which motivic ideas are conveyed or developed. In his 1955 book *Orchestration*, Walter Piston described the phenomenon of the "percussion ensemble" in orchestral parts as when,

Percussion instruments make their effect not only as individuals but also as a unit, in which the effect of the whole may be described as the total of the effects of the parts. For example, when several percussion instruments participate in a tutti passage, the fundamental pattern of the rhythm is not played in unison by all, but each contributes a portion according to its individual nature.⁹⁶

Joseph Wagner also recognized the "percussion ensemble" in his orchestration book from 1959, and explained the possible impetus behind it, saying that,

Not until the turn of the twentieth century did composers free themselves from the conventions of scoring percussion ensembles chiefly for the accentuation of music's elemental rhythmic figures and pulsations... [Composers'] unanimity of interest in the importance of the rhythmic vitality of music brought about a more diversified arrangement of percussion parts with an interplay of mixed rhythmic pattern within the section.⁹⁷

⁹⁶ Walter Piston, *Orchestration* (New York: W.W. Norton & Company, Inc., 1955), 320.

⁹⁷ Joseph Frederick Wagner, *Orchestration; a Practical Handbook* (New York: McGraw-Hill Book Company, Inc., 1959), 271.

John H. Beck, in his article concerning percussion ensembles from his *Encyclopedia of Percussion*, also conceded that, “It is also becoming popular to employ percussion ensembles in orchestral works as well as in drum corps.”⁹⁸

An early example of percussion ensemble in the orchestra, as pointed out by Blades in *Percussion Instruments and Their History*,⁹⁹ is the seven measure percussion section solo over a held string note in the second movement of Hindemith’s *Symphonic Metamorphosis* from 1943. This solo involves six instruments played by a minimum of three people with some common and some interlocking rhythms played out in a musical phrase. As in the Hindemith work, percussion ensembles that appear in orchestral music are often made up of mainly non-pitched instruments. Wagner also remarked that,

It is of more than passing interest to note that very few scorings of the full percussion ensemble in orchestral *tuttis* include percussive instruments with definite pitch other than the timpani. Rather, they do combine instruments with various indefinite pitch levels and place them according to the most salient characteristics of the music.¹⁰⁰

One reason for this could be that issues of tone, volume, sustain, and an inability to adjust intonation limit mallet ensembles’ effectiveness within an orchestral context. However, composers have found ample other uses for mallet instruments in orchestra music. Blades provides several further examples, citing Stravinsky’s *Les Noces*, Milhaud’s *Les Choéphores* and *Christopher Columbus*, Carl Orff’s *Catulli Carmina*, *Astutuli*, and *Ludus de Nato Infante Mirificus*, Luigi Nono’s *Cori di Didone for Chorus and percussion*, and Alexander Goehr’s *Virtutes*.¹⁰¹

For the purposes of this study, the percussion ensemble in the orchestra was defined by the following criteria: 1) The percussion section must be playing solo and/or developing the

⁹⁸ John H. Beck, ed., *Encyclopedia of Percussion* (New York: Garland Publishing, Inc., 1995), 270.

⁹⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 418.

¹⁰⁰ Joseph Frederick Wagner, *Orchestration: A Practical Handbook* (New York: McGraw-Hill Book Company, Inc., 1959), 271.

¹⁰¹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 431-432.

primary musical idea; 2) The music in question must involve three or more players; and 3) There must exist some kind of rhythmical interplay between the instruments of the section.

Solo Passages:

In order for a passage to be considered solo, the instrument must be serving one of the following functions: 1) Playing entirely alone; that is with no accompaniment from any other instrument in the orchestra; or 2) Playing a prominently featured rhythm or line that comes to the forefront of the ensemble and is not doubled by any other instrument. This category is intended to present a sense of how frequently percussion is featured in current orchestral repertoire.

Unusual or Extended Techniques:

More than ever, composers in recent years have exhibited a common predilection for unorthodox playing techniques and effects. Several scores examined for this project included such devices. Gardner Read has done ample research in this area in his books, *Thesaurus of Orchestral Devices* and *Compendium of Modern Instrumental Techniques*, listing several expanded techniques for percussion. Among these are muting techniques, pitch bending, glissandos, achieving harmonics, amplification, and extra-musical devices such as acting, movement or vocalizations. Read also devoted a significant amount of his book to describing percussive techniques that are often required of non-percussion instruments. Amongst various idiomatic techniques for percussion, Read listed the exploration of altering tones of non-pitched drums via fingers or elbows; arranging non-pitched instruments in a scale-like formation for the suggestion of pitch differences such as in the case of tom-toms, drums and cymbals; indicating various areas of striking the instruments to achieve different results; indicating various implements used for playing including mallets, other instruments (maracas, claves, castanets, hands, fingers, nails); and dropping things onto instruments. Read also listed several recent new additions to the percussion section including wind chimes made of various materials

including bamboo and glass. He also discussed various methods of striking including dead strokes, rim-shots, playing the instrument in unconventional ways, and various ways of playing cymbals including scraping, trilling, and striking with various implements. A final category that Read mentioned is what he calls tremolo variants or various techniques involving trilling or vibrato. This includes effects such as adjusting vibraphone fans. The aforementioned, along with any other non-traditional way of playing an instrument, constitute unusual or extended techniques.

Other Explanations:

Number of individual instruments required: Under each category (Standard Percussion Battery, Standard Mallet Battery, etc.) the author has listed the kinds of instruments used from each of those categories. The number of individual instruments required is typically much higher than the total of those lists because duplicates are often required or several sizes of a particular instrument are required. Instruments that come in a set, such as crotales or chimes, are typically counted as one instrument. However, in instances where crotales or chimes have been broken up into individual notes and distributed among the various percussion players, those notes have been counted individually. Membranophones such as timbales and bongos have also been counted individually. While bongos and timbales typically come in sets of two, a great number of composers require odd numbers of these instruments. The same is true for temple blocks. The number of individual instruments required is intended to give a general idea of the size and scope of the set-up.

Difficult vibraphone pedaling: The determination of whether the pedaling for a vibraphone passage is difficult comes from an assessment of the function of the vibraphone line. A certain amount of pedaling is assumed with any vibraphone part, but if it appears that thoughtful pedaling will need to be applied in order for a melodic or harmonic line to speak clearly, and/or if

mallet dampening may be applied in the same instance, the piece was determined as having “difficult pedaling.”

Timpani tuning gauges: The determination of whether tuning gauges are necessary for the execution of a timpani part is not necessarily a reflection of the number of tuning changes that a part requires. Even timpani parts that require moderate tuning may be made easier with tuning gauges. The determination as to if tuning gauges are required is based on the timing of the necessary changes. If the timpanist is required to change pitches on any drums without adequate time to retune by ear then it was determined that that part required tuning gauges. It is also generally assumed that if a glissando to a particular note is required that tuning gauges were necessary. Of course, very skilled timpanists who are extremely familiar with their drums may be able to execute such passages without gauges.

Chapter V

RESULTS: THE CURRENT STATE OF THE MODERN PERCUSSION SECTION

The late 20th century has been a time of great experimentation in all sections of the orchestra, but such experimentation is perhaps most evident in the percussion section. The pieces cited in this study were specifically chosen because of their large percussion forces. The 87 pieces examined called for an average of five percussionists plus one or two timpanists playing an average of 31 instruments. These numbers exhibit an increase in the demands placed upon the percussion sections of today compared to the percussion sections of the past. Of course, not all the pieces examined herein called for great numbers of percussionists. Some pieces, such as the *Violin Concerto: Concentric Paths* (2005) by Thomas Adès, call for only two percussionists and one timpanist. Likewise, only two percussionists are required by Györgi Ligeti to play his work, *Atmosphères* (1961).

Such exceptions notwithstanding, a large number of the pieces in this study call for more than the standard 3-4 percussionists which has been typical of music in the past and which has typically been the standard number of percussionists found in a symphony orchestra. Leonard Bernstein's work *Chichester Psalms* (1965) calls for seven percussionists and one timpanist and his *Symphony No. 3, "Kaddish"* (1961-63) requires eight percussionists and one timpanist. Pierre Boulez is another composer who writes pieces often requiring large percussion sections. His work, *Notations* (1978), calls for eight percussionists and one timpanist. Györgi Kurtág calls for nine percussionists and one timpanist in his *...Quasi Una Fantasia...* (1988). Two of the largest setups encountered by the author while assessing the pieces in this study were *Éclairs sur L'au-delà...* (1988-92) by Olivier Messiaen, which requires 10-15 percussionists to play, and

Cantata para América Mágica (1960) by Alberto Ginastera, which requires eleven percussionists and two timpanists.

It was not altogether unknown for composers of the past to write works which required many percussionists to cover all the parts. Gustav Mahler often wrote pieces requiring at least 5 percussionists and, according to Raynor Carroll's orchestration book, Mahler's *Symphony No. 2, "Resurrection"* requires seven percussionists and two timpanists. Likewise, Richard Strauss' *Salome: Dance of the Seven Veils* requires seven percussionists and one timpanist. However, the extreme numbers of percussionists needed in some modern pieces are a phenomenon that reached new levels post-1960.

Another phenomenon that became increasingly prevalent in the late 20th century was the dividing up of percussion parts by the composers. Of course, as is evidenced by the templates in the appendix, a realistic division of parts does not always match the composer's opinion on the number of percussionists needed. One possible explanation for this phenomenon is that percussion parts are complicated to the point that it often helps the composer to have a sense of the part division in order to keep track of the number of instruments needed. This would be especially important for a composer writing for a group with a limited number of percussionists. Limiting the number of percussionists required to perform a piece is a concern especially for composers who are trying to have their works performed as frequently as possible. Writing for large numbers of percussionists or percussion instruments can be a prohibitive factor for logistical and financial reasons for many ensembles. Another reason that a composer might divide the percussion parts himself may be so he can assign the various percussion forces to different staves of music in the score and can more easily keep track of instruments and numbers of players.

One trend that has been gaining popularity for some time, beginning before 1960 but becoming standard practice since 1960, is writing for unpitched instruments (i.e. cymbals, triangles, tam-tams, drums, etc.) in a "pitched" way. For example, some composers may write

for a large number of drums to be tuned low to high, or different sized triangles, pitched low to high. Sometimes exact pitches are required, and sometimes relative pitches are the intended goal. This partly explains the prevalence today of “multi-percussion” in the orchestra. Peinkofer and Tannigel recognized this trend, writing, “In more recent times other membranophones with controllable head tension and without snares or other auxiliary sounds have also been tuned to fixed pitches, such as the bass drum tuned to Bb in Stravinsky’s *Le Sacre du Printemps*. In other instances it was not so much a matter of choice as of necessity to insist on fixed pitches so that the instruments could meet the harmonic and melodic requirements of the music, especially if the instrumentation was transparent.”¹⁰² Likewise, Gardner Read discussed this trend in his *Compendium of Modern Instrumental Techniques*, saying,

Until the present era of intense exploration of new instrumental techniques, specific pitches on the membranophones were limited to timpani and to especially tuned tom-toms and bongos. More recently, however, experimental composers have been intrigued with the possibility of altering the tone of a nonpitched drum while striking it...Relative pitches in ascending or descending order can also be obtained from an array of membrane and wood instruments, graded in size and position.¹⁰³

The increasing prevalence of “multi-percussion” setups in orchestral ensembles and quick switches between instruments also explains a certain number of unusual stick choices requested by composers. Often a composer will suggest that a player use an implement that is not necessarily typical for that instrument, such as a xylophone mallet on a tom-tom, to accommodate a quick switch between those instruments. Gardner Read wrote that,

A certain amount of mallet and stick ‘borrowing’ is quite common in today’s scores. That is to say, some percussion instruments are played upon with beaters ordinarily employed on other instruments. The chimes, for instance, might be struck with vibraphone mallets, or the marimba bars struck with hard felt timpani sticks. The glockenspiel or vibraphone might be played upon with a triangle beater or with snare drum sticks, to cite only a few of the many possibilities existing for such mallet exchanges.¹⁰⁴

¹⁰² Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 83.

¹⁰³ Gardner Read, *Compendium of Modern Instrumental Techniques* (Westport, Conn.: Greenwood Press, 1993), 171.

¹⁰⁴ *Ibid*, 184.

Some of these requests arise as a matter of convenience. However, when a composer suggests using a mallet or implement that will change the sound of the instrument, for example a triangle beater on a tam-tam, this must also be considered a deliberate timbral choice on the part of the composer.

A trend common to a majority of the pieces in this study was a tendency for composers to make specific requests regarding stick choices. Although it is well documented that Berlioz was the first composer to include such preferences in his scores, especially in his stick indications for timpani and suspended cymbal, this did not become common practice until the mid-20th century. Today, however, it is not uncommon to see pieces of the modern repertoire in which the composer indicates every stick change. The templates in Appendix B of this study reflect only what the author deemed to be unusual stick choices; that is, sticks that would not typically be used to play that instrument. Many composers make some generic types of requests, such as “hard” or “soft” for timpani and suspended cymbal mallets. The templates of Appendix B do not reflect those preferences since those are assumed to be within the realm of standard mallet selection for that instrument.

Other innovations of the percussion section discussed in this study include alternative options for instrumentation prescribed in scores. Alternative options for instrumentation occurred in six out of the 87 pieces included in this study. Typically, when a composer suggests an alternative instrument to the one preferred, it is because the preferred instrument is unusual or could be difficult for the performer to locate. Alberto Ginastera’s 1960 work *Cantata para América Mágica* suggests alternative options for Indian drums and wood drums. Similarly, Thomas Adès, in his much more recent work, *Violin Concerto: Concentric Paths* (2005), suggests substituting a large anvil for the more generic “metal block.”

An extension of this trend is exemplified by composers suggesting a specific brand, manufacturer, or model number of an instrument or mallet. William Kraft, in his score for *Contextures: Riots-Decade '60* (1967), named Remo, Inc. of Sherman Oaks, CA, as the

manufacturer of the Roto-toms he requires in the piece. At the time this piece was composed, roto-toms were a fairly new invention in the percussion market, so naming a manufacturer could ensure that percussionists would know where to find an object they may never have heard of before. Likewise, Steve Reich named a company that distributes a tambourine without jingles for his piece *Tehillim* (1981). Reich wrote in the score, "One type of tambourine without jingles is imported from Brazil by the Latin Percussion Company of Garfield, New Jersey, USA...It is called 'Tambourim' and is supplied with either leather or plastic heads and a tuning key. It is available in two sizes, 5 inch or 6 inch, the large drums should be used for the lower notes and the smaller for the higher notes."¹⁰⁵ Karlheinz Stockhausen recommended a specific model of stick for his work *Michael's Greeting* (1978). Stockhausen recommended that the vibraphone player use Musser 221 "Gary Burton" mallets.

As composers become more experimental with instrumentation, it often becomes necessary for a composer to become an active participant in finding the desired sounds. Chris Lamb, the principal percussionist of the New York Philharmonic, discussed this issue a recent *Los Angeles Times* article. He said, "If a composer writes for something that is so unique and unusual, they need to take on the responsibility for the future of that piece and its sound..."¹⁰⁶ The *Los Angeles Times* article described a recent example of a composer taking on this responsibility by telling how composer Mason Bates accompanied Chicago Symphony Orchestra principal percussionist Cynthia Yeh to a junk yard to find an appropriate alternative to Bates' desired sound of a Model T crank for his work *Alternative Energy*.

Likewise, David Del Tredici, in his score for *An Alice Symphony* (1969; revised 1971), recommended a specific rental company, including the address, where percussionists could find unusual instruments such as a high siren, Theremin, and tuned sleigh bells. The only concern regarding these suggestions is that the companies or brands that the composer has referenced

¹⁰⁵ Steve Reich, *Tehillim* (New York: Hendon Music: Boosey & Hawkes, 1994).

¹⁰⁶ Rick Schultz, "Odd Instruments Are Music to Composers' Ears," *Los Angeles Times*, 8 April 2012.

may eventually go out of business. However, such recommendations provide a helpful starting place for someone who will play the work. Composer Steve Reich, in *Tehillim*, provided a photograph of the instrument that he had in mind. This ongoing and increasingly common trend is reflected in a recent publication by Samuel Solomon entitled, *How to Write for Percussion*. Solomon wrote, "If an especially rare instrument is requested [by a composer], it is possible that one will not be acquired in time for the concert. In this case, the composer should plan to provide the instrument or let the performers use a substitute instrument."¹⁰⁷ If composers continue to write for specific sounds from novel objects, the day may not be far off when the rental parts for a piece will arrive along with a box full of unusual percussion gear.

Other demands on the modern symphony orchestra and percussion section include extra-musical instructions. Gardner Read wrote that,

Whether the unconventional activities expected by the composer help or hinder the player in his labors, loosen up his reflexes or inhibit them, engage his lively interest or embarrass him, are moot points. But as theatricalities, perambulations, vocalizations, and related performance activities are basic to our avant-garde milieu; the instrumentalist and singer of today has to participate as wholeheartedly as he is able in the convincing performance of such new music.¹⁰⁸

Directions for certain unconventional activities, such as asking the musicians to move about during the performance, are not entirely new ideas. Anecdotal tradition recounts the instance of the first performance of Haydn's *"Farewell" Symphony* (1772), in which, at Haydn's request, the musicians blew out their candles and walked offstage one by one at the end of the performance in order to hint to Prince Nikolaus Esterházy that the musicians were ready to leave their summer residence at Esterháza and return to their winter residence to be with their families. However, as Gardner Read pointed out, "For percussionists, perambulation has severe limitations. The players of timpani, gongs, and tam-tam, and the idiophones, for example, can hardly be expected to function normally while moving about the concert platform. But the

¹⁰⁷ Samuel Z. Solomon, *How to Write for Percussion* (New York, NY: Samuel Z Solomon, 2002), 9.

¹⁰⁸ Gardner Read, *Compendium of Modern Instrumental Techniques* (Westport, Conn.: Greenwood Press, 1993), 129.

smaller and more portable instruments – woodblock, triangle, tambourine, maracas, finger cymbals, and the like – can all be played easily and effectively while the percussionist is moving about.”¹⁰⁹ Of the works examined in this study, two were found to have instructions requiring percussionists to move about. George Crumb instructed percussionists to walk around using a processional step pattern in rhythm in his *Echoes of Time and the River* (1967). Likewise, Toru Takemitsu wrote detailed instructions on how the percussionists should enter the auditorium while playing instruments in *Flow From Me What You Call Time* (1990).

Other extra musical instructions include having percussionists speak, shout, or whisper. This is one extra musical device in which the percussionists have a distinct advantage, playing instruments that generally don't require the use of their mouth. Gardner Read gives quite a few examples of this device in his *Compendium of Modern Instrumental Techniques* by composers such as Berio, Crumb, Rands, Rouse, and Schwantner. Two pieces included in this study had such instructions. Perhaps the most unusual extra-musical suggestion encountered by author of this study was Toru Takemitsu's instructions on what clothing the performers should wear for *Flow From Me What You Call Time* (1990).

Other types of instructions, such as the requirement of offstage percussion, is not new, but is still commonly requested. Even before percussion became a regular member of the opera orchestra, offstage percussion parts were common. This tradition is also discussed by Gardner Read as an effect used by composers such as Tchaikovsky, Mahler, Strauss, and Stravinsky. Four of 87 pieces in this study called for offstage percussion parts.

A modern extension of instructions requiring offstage placement of instruments is instructions requiring specific onstage placement of the instruments. Eight out of 87 pieces in this study provided setup diagrams. Sometimes the diagrams were more general, indicating where the percussionist is supposed to stand. Some were more detailed and included the

¹⁰⁹ Gardner Read, *Compendium of Modern Instrumental Techniques* (Westport, Conn.: Greenwood Press, 1993), 131.

placement of each particular instrument. One unusual setup instruction from this study was seen in *Interplay* (1982; revised 1984), in which William Kraft instructed that the marimba should be raised over vibraphone to provide two manuals.

The Standard Percussion Battery:

The standard percussion battery was defined in the previous chapter as the instruments of the percussion section that are most commonly found in the orchestral repertoire. These instruments include the triangle, snare drum, tenor drum, tom-toms, bass drum, cymbals, tambourine, and tam-tam. Almost all the pieces included in this study call for the use of at least one instrument from the standard percussion battery. The only piece that does not call for the use of any standard percussion battery instruments is *Atmosphères* (1961) by Györgi Ligeti which requires no traditional percussion instruments at all, but rather instructs the percussionists to play on the strings of grand pianos. It should also be noted that 48 of the 86 pieces included in this study call for the use of an instrument from the standard percussion battery in some kind of solo moment or passage.

Bass Drum:

The bass drum has a long history in the orchestra. Blades credited Gluck to be the first to use the bass drum in his *Echo and Narcissus* (1779).¹¹⁰ The bass drum's first appearances in the orchestra stemmed from the Turkish Janissary tradition. The bass drum was used in a Turkish military vein in Mozart's *Abduction from the Seraglio* (1782) as well as in Haydn's *Military Symphony No. 100* (1794). Beethoven later made use of the bass drum in works such as *Wellington's Victory* (1813) and in the finale of his *Symphony 9* (1823). Peinkofer and Tannigel wrote that, "In Spontini's opera *La Vestale* (1807) the bass drum was used for the first time in a way different from Janissary tradition. It was struck with a beater having a large cloth

¹¹⁰ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 261.

or leather-padded head, while a second performer had to play a pair of cymbals in the same rhythm. This practice obviated the necessity for mentioning the *Piatti* in a *gran cassa* part, since it was understood that the cymbals would always have to play along with the bass drum. Only when the specific instruction *cassa sola* appeared was the bass drum to sound alone.”¹¹¹ The tradition of coupling the bass drum and cymbals carried through most of the 19th century, but would later become less popular, only to see a revival of such requests by composers like Igor Stravinsky and Gustav Mahler. Three of 87 works from this study contain parts for bass drum with attached cymbal.

In the earlier part of the 20th century, such innovations as a pedal operated bass drum, as now commonly found on drumsets, were required by composers like Darius Milhaud. As the drumset developed in conjunction with jazz music, the appearance of a drumset in the orchestra or a pedal operated bass drum as part of a multi-percussion setup became more common. Six of 87 pieces in this study were found to use to pedal bass drums.

Berlioz was the first composer to regularly specify stick types. The bass drum continued in regular usage throughout the 19th century, as what was originally the Janissary ensemble became standard percussion. The types of mallets commonly used to play the bass drum were already quite diverse by 1960. Blades wrote that, “The bass drummer in a symphony orchestra is equipped with almost as great a variety of sticks as the timpanist, ranging from the large head of lamb’s wool to the small beaters of hard felt or wood, the latter used to produce the brittle effects so frequently demanded by modern composers.”¹¹² Today, typical beaters on the drum include soft, medium, and hard felt beaters and well as wood. Appendix B of this study documents atypical stick and mallet requests for the bass drum. These include requests for snare drum sticks or wood sticks, timpani sticks, hard rubber sticks, hands or fingers, wire brushes, and hammers.

¹¹¹ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments*, (New York: Belwin-Mills Publishing Corp., 1976), 94.

¹¹² James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 367.

Of the aforementioned stick requests, the use of snare drum sticks or wood sticks is the most common. Second to that, there are three requests for the use of wire brushes. The frequency of the requests for wire brushes indicates that the use of wire brushes on the bass drum has increased in popularity over the years. Gardner Read lists the 1933 work *The Dance Movements* by William Russell as one early instance the directed use of wire brushes on bass drum. Additionally, the request for playing the bass drum with fingers is something that appears twice in this study. Read also lists this as an effect previously used by Edgar Stillman-Kelley in his work *Gulliver – His Voyage to Lilliput*. The most unusual request for a playing implement on the bass drum is a hammer, as requested by Morton Gould in his *Symphony of Spiritual* (1975). If one were actually to use hammers on a bass drum there would be a high likelihood of breaking the head. It is possible that Gould simply meant hard or wooden mallets. That would be a more realistic interpretation of such an instruction.

Other unusual requests for playing the bass drum encountered by the author in this study include muting or dampening instructions, playing the bass drum on the shell, playing the bass drum at the rim, playing on both sides of the drum, and getting a pitch contour out of the drum by applying pressure to the head while playing. Instructions for dampening the drum are not that unusual. Read provided several examples of these in his books. Also not entirely unusual are requests for striking the drum on the shell, a technique Read cited with examples by Stravinsky, Russell, Mahler and Varèse. Less common are requests for playing the bass drum at the rim (as opposed to on the rim), as exemplified by an instruction given by Brian Ferneyhough in *Plötzlichkeit* (2006) and by a similar instruction given by Stravinsky in *Le Sacre du Printemps* to play at the edge of the head. Another slightly unusual request is to play the bass drum on both sides. Historically this was the traditional way of playing the drum, with one hand holding a stick and one hand holding a switch. However modern technique generally dictates playing on only one skin of the bass drum. Read listed Arnold Schoenberg as a

composer who called for such a technique in his 1909 work, *Fünf Orchesterstücke*. William Kraft made the same request in his 1967 work *Contexture: Riots-Decades '60*.

The only technique requested for which the author could not find a historical precedent was the request by George Crumb in *Echoes of Time and the River* to play the drum with pitch contour by applying pressure to the head with the elbow. This is a common way of playing certain drums, such as an African “talking drum” or *Kalengo*, in which the pitch is altered by squeezing the cords holding the head of the drum in place thus altering the pressure of the head.

Drums:

The history of drums in the orchestra includes many different makes and styles of drums. For the purposes of this study, and due to the fact that terminology for drums varies quite regularly, a large variety of drums are categorized together here based on similarity of playing technique. While each drum has a unique history, this category includes the snare drum, side drum, tenor drum, military drum, field drum, large parade drum, tamburo, tambour, and piccolo drum. Use of the drum can be traced back to military roots, and instructions on how to play the drum appear in treatises dating back hundreds of years. Instructions for the use of drums, specifically “side drums,” are given by composers such as Handel in his *Music for the Royal Fireworks* from 1749.¹¹³ Blades cited Gluck as being responsible for the earliest orchestral use of the side drum in his *Iphigénie en Tauride*.¹¹⁴ However other accounts put the first use of the side drum as being in the opera *Alcione* in 1706 by Marin Marais. Regardless of the first use, the side drum did not catch on in general popularity among composers until the 19th century, when it was frequently used by composers such as Rossini in his operas.

Various playing techniques and effects were already in common usage by the earlier part of the 20th century. Blades, referring to these effects, wrote,

¹¹³ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 253.

¹¹⁴ *Ibid*, 297.

The use of the side drum with snare released is common, as is striking of the rim, and the use of wire brushes and sticks of various types. On occasions the instrument is further muffled by placing a piece of cloth on the vellum. A less frequent request is 'the striking of the frame', as in Debussy's *Gigues* and the Mussorgsky-Ravel *Pictures from an Exhibition (jeu ordinaire sur la caisse)*. There is also the *rim shot* in which the rim and head are struck simultaneously with one stick, or alternatively one stick is laid with its tip on the skin and the shaft on the rim, to be struck with the other e.g. Milhaud's *Création du Monde* (1923), Copland's Third Symphony (1946), the overture *Beckus the Dandipratt*, Malcolm Arnold (1948) and Elliot Carter's Variations for Orchestra (1954-5).¹¹⁵

Some of the effects, such as striking the rim of the drum, rim shots, and the use of wire brushes, grew out of the jazz idiom. Other effects, such as playing at the center and edge of the drum, were in common use by composers such as Bartok and Stravinsky.¹¹⁶ Guy Gregoire Gauthreaux II, in his dissertation on the history of the snare drum, recognized the evolution of writing for the snare drum in one musical example by Bela Bartok. Gauthreaux wrote,

In 1944, the foremost Hungarian composer, Bela Bartok completed the highly successful Concerto for Orchestra. The second movement, entitled "The Joke of the Couples," begins with a snare drum solo that represents the culmination of many years of evolution for orchestral snare drum performance. This passage...is completely void of the characteristics originally present in early music for the snare drum. There are no flams, ruffs, rolls or steady march-like rhythms. Bartok also calls for a clear snare drum (snares off) throughout.¹¹⁷

Blades and Gauthreaux reached similar conclusions about the state of orchestral snare drumming by the mid 20th century. Blades wrote, "In recent years composers have taken full advantage of the rhythmic resources and the numerous tone colours possible from the side drum. It is no longer an instrument chiefly concerned with the demarcation of rhythm, punctuations, or with strong characterization, admirable as it still is in such situations."¹¹⁸ By the mid 20th century the most common implement for playing the drum was the standard drumstick. Therefore, for the purposes of this document, only the implements that are not drumsticks are documented.

¹¹⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 374.

¹¹⁶ *Ibid*, 212.

¹¹⁷ Guy G. Gauthreaux, II, Orchestral Snare Drum Performance: An Historical Study (Louisiana State University, 1989), 131-132.

¹¹⁸ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 373.

All of the non-standard methods of playing the drum that have been mentioned in this study are still in common and frequent use. Requests to play snare drums with snares off, the use of rim shots, and playing or hitting the rim of the drum are all very common requests. Slightly less common, but still prevalent, are requests to play on different parts of the drum head (center or edge). Likewise, instructions to dampen the drum in some capacity are not entirely uncommon. Perhaps the most unusual request was that by composer Joan Tower who specified a specific sticking for the drum part in her piece *Sequoia* (1981). She does this for passages on all the percussion instruments, including timpani and temple blocks. One wonders if she issued such instructions because she felt that sticking produced a preferred phrasing. While it is uncommon for composers to provide stickings, Tower was certainly not the first to do this. Blades, in his book, mentioned *Chronochromie* by Olivier Messiaen as being “A rare instance of the composer giving the ‘fingering’ for the xylophone...”¹¹⁹

The varieties of requested implements for hitting the drums encountered in this study also generally follow in well established traditions. There are many requests for brushes on the drum, a tradition that began in the earlier part of the 20th century and that continues to have a strong use. Other suggestions include using some kind of softer mallets on the drum, such as felt sticks or timpani sticks. Other requests include hitting a rute on the drum, or hitting the drum with the butt of the stick. Some requests, such as using “pottery mallets,” made by William Kraft in his piece *Interplay* (1982; revised 1984) suggest less a new sound concept than a specific kind of stick the composer had in mind.

Tom-toms:

The tom-tom is the newest member of the “standard percussion battery.” Blades wrote, “The shallow drum (*pieng-ku*), common in the Chinese orchestra, entered the western dance band in the early 1920’s. The instrument referred to somewhat loosely as a *tom-tom* kept

¹¹⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 404.

company with its 'fellow countrymen' the Chinese cymbal and woodblock, forming an integral part of the percussion equipment used in this pioneering period of western dance music."¹²⁰

One early example of the tom-tom in the orchestral literature, as cited by Blades, is Copland's *Concerto for Piano and Orchestra* from 1929. Because of the history of this drum, the tom-toms are often referred to, even today, as "Chinese tom-toms" or "Chinese drums." Likewise the tom-toms have been referred to as "jazz drums," as they are by Alban Berg in his opera *Lulu* from 1933.¹²¹

While the tom-toms have certainly become a standard instrument found in the orchestra, perhaps because of their late entrance they are still less common than snare drums or bass drums. Forty out of 87 pieces included in this study required tom-toms. However, an examination of the likelihood of finding this instrument in orchestral ensembles over the decades shows that it is continuing to gain popularity and appears to be in more frequent use in recent years. This study shows that, of the pieces composed in the 1960's, only five out of 22 used tom-toms. By the 1970's, 7 out of fourteen pieces used tom-toms. By the 2000's, six out of seven pieces required tom-toms. Seventy percent of the pieces using tom-toms were composed in 1980 or later.

The techniques for playing the tom-toms are largely the same as those of other drums. Predictably, none of the unusual requests for playing the tom-toms are different from the drums already discussed. The regular implements for hitting the tom-toms are snare drum sticks although, more frequently than one might find with the drums, composers also request softer mallets. One unusual request, likely resulting from the responsive and untextured plastic heads regularly used on tom-toms of today, is an instruction by Magnus Lindberg to rub a superball on the head of a tom-tom in his work *Kraft* (1983-85).

¹²⁰ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 112.

¹²¹ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 115.

Cymbals:

The early history of the cymbals in the orchestra parallels that of the bass drum and the Janissary tradition. Several sources cite the earliest use of cymbals by the orchestra as the 1680 opera *Esther* by Nicolaus Adam Strungk. According to Blades, “During the latter half of the nineteenth century, due to the opulent scores of composers of the caliber of Berlioz and Wagner, which were coloured by an abundant use of cymbals (in certain instances an innovation), the instruments achieved an important and permanent position in orchestra.”¹²² While crash cymbals, played along with the bass drum, were the first cymbals to become common members of the percussion section, by the 19th century the suspended cymbal had also become a regular member of the orchestral ensemble. Blades attributed Berlioz with the first use of the suspended cymbal in the orchestra.¹²³ Different varieties of cymbals, namely the sizzle cymbal, hi-hats, and the Chinese cymbal, came into common usage in the earlier half of the 20th century due to their use in jazz bands and dance bands. Blades wrote, “Hindemith in his *Symphony in E flat* (1940) somewhat anticipated the ‘sizzle’ cymbal of to-day’s rhythmic groups, for he gives instructions that the cymbal be struck with a soft stick whilst a thin rod (knitting needle) is held to vibrate against the edge of the instrument.”¹²⁴

The most common ways of playing the cymbals include the common crash or the hitting of the suspended cymbal. However, works included in this study also request the technique of rubbing crash cymbals together. Blades says of this technique: “A tremolo on a pair of cymbals, a device frequently used in the past, is now less often prescribed. This ‘two-plate roll,’ as it is known, is produced by agitating the edges of the plates against each other...as in Bartók’s *Violin Concerto No. 2* and his *Second Rhapsody for Violin and Orchestra*, and Vaughan Williams’ *A London Symphony*. The roll is now more generally allotted to the suspended (loose)

¹²² James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 171.

¹²³ *Ibid*, 379.

¹²⁴ *Ibid*, 381.

cymbal.”¹²⁵ The effect of this technique is not unlike the sound of rolling on a sizzle cymbal, which is the more preferred method among composers today. Other composers who wrote for these effects included Mahler, Bartok, and Wagner. Of the pieces included in this study, two call for such a technique. While not extremely popular, it is a technique that one may anticipate seeing from time to time.

Instructions for hitting the cymbal in different areas, such as the center or edge, are also quite common among pieces from this study. Blades wrote, “In addition to the variety of tones produced by striking the cymbal in the normal manner with beaters of differing texture, composers now specify the plate to be struck on the centre dome and edge.”¹²⁶ Blades also listed other devices used by composers, such as playing the cymbal with wire brushes and scraping the cymbal with a threaded rod. Gardner Read wrote that, “It is a rather curious fact that composers have been far more explicit in designating specific stick types for striking the suspended cymbal than for any other percussion instrument, even including the timpani.”¹²⁷ Other commonly requested implements for hitting suspended cymbals are triangle beaters, wooden sticks, and wire brushes. Scraping or glissing the cymbal is also commonly requested. Less frequently requested, but not entirely uncommon, is bowing the cymbal.

Aside from crash and suspended cymbals, other varieties of cymbals have become quite common in recent years. The use of hi-hat cymbals in ensembles has been increasing in recent years. Of the nine pieces requiring hi-hat cymbals in this study, eight of them were written after 1980. The sizzle cymbal and Chinese cymbals have been in common and frequent use since 1960. Additionally in recent years composers have also called for other cymbals associated with the drumset, such as the splash cymbal.

Unusual requests in recent years include the placing of a suspended cymbal on a timpani head and either rolling on the cymbal or bowing the cymbal while manipulating the

¹²⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 379.

¹²⁶ *Ibid*, 380.

¹²⁷ Gardner Read, *Thesaurus of Orchestral Devices* (New York: Pitman Publishing Company, 1953), 158.

timpani pedal to achieve an eerie pitch-controlled echo. This effect was requested by both Tan Dun in *Death and Fire* (1992) and Toru Takemitsu in *Twill by Twilight* (1988).

Tam-tam:

Differentiation in terminology between the gong and the tam-tam must be explained. In general, a tam-tam refers to an untuned instrument, while a gong refers to an instrument tuned to a specific pitch. However, composers have been using the terms interchangeably for many years. Blades wrote that “Composers often use the term tam-tam in preference to gong to ensure the use of the large instrument.”¹²⁸ Even today, composers often write gong when they mean tam-tam and vice versa. It is generally assumed by percussionists that unless pitched instruments are specified, the composer is referring to the unpitched tam-tam. Therefore, for this study, the author will refer to the unpitched instrument as a “tam-tam” and reserve the word “gong” for instruments with definite tuned pitches.

The history of the tam-tam in orchestral ensembles goes back quite far. Blades pointed to the use of the tam-tam (or gong as he says) as beginning at the end of the eighteenth century. He wrote, “The gong appeared in orchestral scores towards the close of the eighteenth century in Gossec’s *Funeral Music for Mirabeau* (1791) and Steibelt’s *Romeo and Juliet* (1793). A few years later Lesueur used it in his opera *Les Bardes* (1804) followed by Spontini in *La Vestale* (1807), and subsequently in Bellini’s *Norma* (1831), Meyerbeer’s *Robert le Diable* of the same year, and Halévy’s *La Juive* (1835), from which time it has been in constant use.”¹²⁹

Special techniques or requests for playing the tam-tam have been common since the beginning of the 20th century. Techniques already in common use by the 1960s included hitting the tam-tam with various implements (including snare drum sticks, timpani sticks, and triangle beaters); bowing the tam-tam; laying the tam-tam horizontally; and creating a water-gong effect.

¹²⁸ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 383.

¹²⁹ *Ibid*, 383.

All of these effects are still in common use today. In addition, to the aforementioned techniques, the pieces in this study also include requests by composers to play on various parts of the tam-tam, such as the edge or rim. Several composers also recommended applying a metal implement, such as a coin or triangle beater, to the edge of a vibrating tam-tam. Pierre Boulez went so far as to require the performer to hit the tam-tam with a triangle in *Notations* (1978). Other requests include laying a tam-tam flat on its side. This request was made by both Boulez and Thomas Adès.

As with the cymbal, one sees composers frequently asking for various kinds of beaters other than the generally heavy, soft beater marketed as a “tam-tam” beater. The most common requests include wooden beaters or snare drum sticks, metal sticks or triangle beaters, and brushes. As with the cymbals, one also sees many requests for scraping or glissing on the tam-tam, typically with a metal stick, triangle beater or coin. This effect was famously used by Stravinsky in *Le Sacre du Printemps*.

Tambourine:

The tambourine, like the other instruments of the standard percussion battery, has been part of the orchestral ensemble for hundreds of years. Blades attributed as Gluck being the first to incorporate this instrument into the orchestral ensemble at the same time as the bass drum in Gluck’s work *Echo and Narcissus* in 1779.¹³⁰ Blades also mentioned the piece *La Caravane du Caire* from 1783 by Grétry as having a tambourine part. It is perhaps not surprising that the early composers who used bass drum, cymbals, and triangle were also the same composers who experimented with other instruments. Also named by Blades is Mozart, who used the tambourine in his *German Dances* from 1787. While the tambourine was not part of the Janissary ensemble, it was present in European society throughout the middle ages and even

¹³⁰ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 261.

earlier, perhaps having arrived there with the Romans.¹³¹ Throughout the middle ages, the tambourine was commonly used by Gypsies and other wandering musicians and performers.

The tambourine was well established in ensembles by the nineteenth century. Blades wrote,

It is in the works of the Parisian composers of the first half of the nineteenth century that we find a marked change of colour in the percussion section of orchestra, resulting from an extension of the use of the now permanent members, and the introduction of further instruments...The tambourine was at this time, according to Berlioz, in considerable orchestra use. We find it in Weber's *Preciosa* (1820). Berlioz occasionally calls for two tambourines (two players) and in *Harold in Italy* for three. In his *Instrumentation* he deals, as does Kastner, to some extent with technical details concerning this instrument.¹³²

Because the tambourine is one of the oldest percussion instruments, the methods of playing the tambourine are diverse and were well established by the time the instrument entered the orchestra. Of the more unusual methods that one can use to play the instrument Blades listed flicking or brushing the jingles, playing on the rim, or placing the tambourine on the side drum or timpani head.¹³³ Other special effects for the tambourine include Stravinsky's instruction to let the tambourine fall to the floor in *Petrouchka*.¹³⁴ Other, more unusual methods include playing the tambourine with sticks, such as in Respighi's *The Pines of Rome*. Other effects, noted by Read, include muffling or dampening the tambourine, and playing the tambourine with various parts of the hand or fingers or with different types of mallets.

Of the pieces examined in this study, instructions for the use of the thumb roll on the tambourine was the most common request. Playing the tambourine with sticks was also relatively common, while other methods such as muting and mounting the tambourine were used as well. The most unusual request was to use a tuned tambourine without jingles. This request was made by Steve Reich in this work *Tehillim* (1981). The use of the tambourine

¹³¹ James Blades wrote, "From early literature we know that the ships of William the Conqueror resounded with music when he sailed for Britain. Drums and cymbals are mentioned, though it is conceivable that percussion instruments were by no means a rarity in Britain centuries earlier, for when Romans settled there they must surely have brought with them musical instruments associated with their recreations: cymbals, tambourine and drum" (James Blades, *Percussion Instruments and Their History*, 189-190).

¹³² Ibid, 291.

¹³³ Ibid, 386.

¹³⁴ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 102.

without jingles, while not common, does have precedent with Manuel de Falla's *El Retablo de Maese Pedro*.

Triangle:

The triangle entered the orchestra as part of the Janissary tradition. Early triangles may have had rings on them which produced a continuous jingle, and while such rings may have still been present when Mozart wrote for the triangle in *Il Seraglio*, the triangle had lost its rings by the early 19th century. Other early examples of triangle use include Haydn's "*Military*" *Symphony No. 100* from 1794, Grétry's *La Fausse Magie* from 1775, and Beethoven's *Symphony No. 9* from 1823.

Since the triangle is a relatively simple instrument, the ways of playing the triangle are quite limited. Consequently the variety of requests for special or different playing techniques is also quite limited. A normal implement for hitting the triangle is some kind of metal stick or triangle beater. Other methods include hitting the triangle with a snare drum stick, as Stravinsky indicated in *Le Sacre du Printemps* from 1913. Of the pieces included in this study, only two were found to request this technique. Other methods of playing the triangle include Penderecki's request for *Fluorescences* (1982) for the triangle to be played with timpani sticks.

The Standard Mallet Battery:

The standard mallet battery was defined in the previous chapter as all standard model/size mallet instruments that are available for purchase and found in virtually every orchestra and university. These instruments include the vibraphone (or vibraharp), glockenspiel, marimba, xylophone, crotales (antique cymbals), bell plates, and chimes. Almost all of the pieces examined for this study require the use of at least one instrument from the standard mallet battery (84 of 87 pieces). The only pieces that do not require any mallet instrument were Walter Piston's *Symphony No. 7* (1960), Györgi Ligeti's *Atmosphères* (1961),

and Thomas Adès' *Violin Concerto: Concentric Paths* (2005). The Ligeti work, as previously mentioned, uses an alternative instrumentation of two percussionists playing on piano strings. Surprisingly (because it is the newcomer of the mallet instruments), the vibraphone is the most popular instrument from the standard mallet battery to be requested, appearing in 66 pieces. Following the vibraphone in popularity, the glockenspiel is required in 65 pieces, the chimes in 56 pieces, the xylophone and marimba in 48 pieces each, the crotales in 42 pieces, the bell plates in 6 pieces, and xylorimba (an instrument no longer manufactured yet a favorite of Messiaen) in 2 pieces.

Almost half of the works that include some instrument from the standard mallet battery use that instrument in a solo note or moment (42 out of 87 pieces). This number almost rivals the instances of solo moments or passages for the instruments in the entire standard percussion battery, indicating that the importance of mallet instruments in the orchestral ensemble has grown to match that of the standard percussion battery despite the standard percussion battery's longer history as members of the orchestral ensemble. All of the aforementioned mallet instruments had been introduced into the orchestral ensemble by 1960, but their continuing frequent usage shows that past 50 years has cemented their importance as part of the modern percussion section.

It is also clear that, as composers have become accustomed to the presence of mallet instruments in ensembles, their willingness to write more technically complicated and experimental parts for these instruments has grown. Of the 84 pieces that required at least one kind of mallet instrument, 49 of those pieces required four-mallet technique. It should perhaps come as no surprise that the techniques employed by composers in their orchestral parts parallel the developments that have occurred in mallet technique and solo mallet literature over the last 50 years. Once a specialized technique, four-mallet playing is now a required skill set for any percussionist and the study of four-mallet literature on marimba and vibraphone is an integral part of any conservatory or music school program.

Likewise, although not unique to percussion or mallet instruments in particular, the general difficulty of parts for mallet instruments that appear in orchestral scores has increased. More than half the pieces included in this study (55 pieces) contain mallets parts that are considered by the author to be beyond typical sight-reading capabilities due to complexities of notes, rhythm, or tempo. Blades wrote, "Whilst in no way denying the skill of performers in the past, the approach to the tuned percussion instruments, particularly in sight-reading, has made great strides in recent years. In a sizeable orchestra there is now at least one 'mallet man', though it is necessary that all the percussionists be conversant with the tuned percussion. The prevailing high standard of percussion playing is due in no small way to excellent tutorial facilities. Young aspirants now have the opportunity of studying under players of repute, of gaining percussion diplomas, and acquiring experience in youth orchestras."¹³⁵ The complexity of mallet literature has increased rapidly since the 1970's, as have the skills required today of young performers coming out of music schools. Consequently, composers generally have increased expectations regarding playing.

Aside from the standard two and four-mallet techniques common to most mallet instruments, more unusual techniques are also commonly found in orchestral parts. The most frequently used extended technique seen in the repertoire of this study is the use of glissandos, contained in 26 pieces. The use of glissando is not limited to vibraphones or marimba but is also seen, albeit less frequently, on chimes, glockenspiel, and crotales. Less frequent requests include the use of dead sticking, amplification of the instruments, improvisation, and offstage use of the instruments. All of these techniques are commonly seen in solo repertoire as well.

Vibraphone:

The vibraphone was invented in the earlier part of the 20th century. The vibraphone was rapidly incorporated into orchestral ensembles and, over the years, has become extremely

¹³⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 399.

popular in both the jazz and classical medium. Blades credited Vaudeville for the popularization of the vibraphone. He said that, "Vaudeville it seems was responsible for the introduction of the vibraphone. In this field of entertainment, the xylophone, marimba and numerous novel percussion instruments were popular features."¹³⁶ While the vibraphone may have started as a novelty instrument, it was quickly taken seriously by both performers and composers alike. Of the pieces examined for this study, a full three quarters of them (66 out of 87 pieces) require the use of the vibraphone.

Pedaling is an integral part of playing the vibraphone, and the difficulty of a part can depend on the amount or complexity of pedaling needed. Twenty-five of the pieces from this study that include vibraphone require what the author deems to be difficult pedaling. Pedaling can be difficult due to techniques applied to bring out melodic lines or notes, or due to the necessity (sometimes specified by the composer, but often not) of using both normal pedaling and mallet dampening to achieve the best possible lines.

The development of the vibraphone can be traced through a few novel inventions, beginning in 1916 with the Leedy Drum Company's 'Steel Marimba' which included vibrato. This instrument was termed a "Vibraphone." The Deagan Company came out with a similar apparatus which it called a "Vibraharp." The terms quickly became interchangeable. Other models were also developed throughout the 1920's by the Premier Drum Company in England and later by the Ludwig Drum Company in the United States. "By 1936, basic changes in the physical appearance of the vibes had taken place...The design of the instrument established a more substantial appearance which closely resembles the design used today."¹³⁷

The vibraphone was given a place in orchestra ensembles almost immediately. A prominent vibraphone part was composed by Alban Berg for his 1934 opera, *Lulu*. It is astounding to consider that, from the vibraphone's earliest development to its place in the

¹³⁶ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 408.

¹³⁷ Jacqueline Meyer, "Early History and Development of the Vibes," *Percussionist* 13, no. 2 (1976): 47.

orchestra, less than 20 years elapsed. The earliest use of the vibraphone in an orchestral setting, as credited by the author, may be a 1916 work by Percy Aldridge Grainger entitled, *In a Nutshell: Suite for Orchestra, Piano and Deagan Percussion Instruments*. The Grainger piece calls for a “Deagan Steel Marimba or Hawkes’ Resonaphone.” While this work was a novelty piece to showcase Deagan instruments, it is noteworthy to notice that Grainger was interested and aware of the newest innovations available to the percussion section. The idea that a composer would take a hands-on interest in percussion was inconceivable before the 20th century. However, in the early 20th century, composers including Stravinsky, in the composition of *A Soldier’s Tale*, began to take such an active interest. Other very early uses of the vibraphone include: *Chants d’Auvergne, 5th Series* (1923-30) by Joseph Canteloube; *Nocturne for Lili Pons* (1933) and *Shall We Dance: Promenade, “Walking the Dog”* (1937) by George Gershwin; *Capriccio for Orchestra* (1932) by Gustav Holst; *Diane de Poitiers: Suite 1 and 2* (1934) by Jacques Ibert; *Don Quichotte à Dulcinée* (1932-33) by Maurice Ravel; and several works, many of which were composed for film, by Aaron Copland, Ferde Grofe, William Grant Still, and Erich Wolfgang Korngold. The exposure of the vibraphone through jazz music and film scores contributed to the vibraphone’s popularity and helped to propel this instrument into common acceptance. By the 1940’s, the instrument was frequently being used in serious orchestral compositions. By the 1960’s, many composers had begun to incorporate the vibraphone into their scores, even composers who has not previously used the instrument.

The most popular extended technique currently requested by composers for the vibraphone is the technique of bowing the vibraphone bars. This technique is likely entirely new since the 1960’s. Gardner Read makes no mention of this technique in his 1953 *Thesaurus of Orchestral Devices*. He does, however, discuss bowing of mallet instrument in his 1993 follow-up work, *Compendium of Modern Instrumental Techniques*. Read wrote, “An increasing number of composers of experimental music have directed the idiophone players to draw a well-rosined cello or doublebass bow across the near edge of a metal plate on vibraphone and

glockenspiel or a wooden bar of xylophone or marimba.”¹³⁸ Other, less common requests include instructions to achieve overtones on a vibraphone, pitch bending, playing muted vibraphone, mallet dampening, and hand dampening of the vibraphone.

Requests for different kinds of sticks on the vibraphone (other than the common wound cord mallets appropriate for vibraphone use) include requests for metal sticks or triangle beaters, extremely hard mallets such as xylophone or glockenspiel mallets, wire brushes, or drumsticks.

Xylophone:

The history of the xylophone in the orchestra dates back to the latter part of the 19th century. Mention of a folk instrument called a *strohfiedel* dates back to at least 1511; however that instrument did not become a member of the orchestral ensemble until much later. The first documented use of a xylophone in an orchestral work occurred in 1874, with Saint-Saens’ *Danse Macabre*. It took a little time for the xylophone to catch on as a common orchestral instrument. Other early uses of the xylophone include *Les Carnaval des Animaux* (1886) by Saint-Saens, *Espanola Suite* (1886) by Issac Albeniz, and *Hansel und Gretel* (1890-93) by Englebert Humperdinck. The xylophone experienced a little more popularity after 1900 with composers such as Debussy, Elgar, Glazunov, Grainger, Mahler, Ravel, Rimsky-Korsakov, Schoenberg, Strauss, and Stravinsky writing some of the earliest parts for it. Blades wrote, “With occasional exceptions, such as Holbrooke’s and Mahler’s sparing use of the xylophone, and, with other compositions, a limited use of the glockenspiel and tubular bells, the attention of most serious composers – until the conclusion of World War I – centred on the timpani.”¹³⁹ By the end of the World War I the xylophone was in regular use in orchestral ensembles and has

¹³⁸ Gardner Read, *Compendium of Modern Instrumental Techniques* (Westport, Conn.: Greenwood Press, 1993), 182.

¹³⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 333.

remained so to this day. Out of the pieces examined for this study, more than half (48 pieces) have xylophone parts.

As with other mallet instruments, the parts written for the xylophone have continued to increase in difficulty in recent years and are now often featured with important lines, doublings, or solos. Blades wrote that, "It is a great credit to the modern player that composers should entrust such exacting parts to the xylophone and other melodic percussion."¹⁴⁰ Not very many pieces from this study include unusual requests for the xylophone. Periodically a composer might request soft sticks, which differ in composition and sound production from the usual hard plastic or rubber mallets typically used on a xylophone.

Glockenspiel:

The glockenspiel has the longest history in the orchestra of all the instruments from the standard mallet battery. Handel is often credited with the first orchestral composition requiring the use of the glockenspiel in his 1738 oratorio, *Saul*. Another of the earliest known examples of glockenspiel use in an orchestral composition includes Mozart's 1791 opera, *The Magic Flute*. By the mid-19th century, composers began using the glockenspiel with some regularity. Wagner often used it in his works, along with Johann Strauss, Tchaikovsky, Glazunov, and Debussy. The glockenspiel remains in regular use today. Sixty-five pieces from this study include parts for glockenspiel.

Unusual requests by modern composers for the glockenspiel include William Kraft's instruction for glockenspiel muffling in *Contextures: Riots-Decade* (1978), and Pierre Boulez's requirement of a pedal glockenspiel for his 1978 work, *Notations*. A majority of modern glockenspiels do not include dampening mechanisms or resonators. The resonators, while they can enhance overtones and sound, are not essential. As for dampening, Blades wrote, "Though seen on occasional instruments, damping mechanism has to date not been considered

¹⁴⁰ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 425.

essential, the performer where necessary using a finger-damping technique...¹⁴¹ Other unusual requests for glockenspiel, as seen in this study, pertain to the types of mallets to be used. Typical glockenspiel mallets are made of hard rubber or plastic. Also common is the use of metal mallets on the glockenspiel. Metal mallets, or some variant, such as knitting needles or triangle beaters, were requested by a few composers. Some composers requested soft mallets or rubber mallets on the glockenspiel. Most unusual was George Crumb's request for wire brushes on the glockenspiel in his 1967 work, *Echoes of Time and the River*.

Marimba:

As with the vibraphone, the marimba made a quick transition from its introduction to the American public in its modern form to its acceptance as an orchestral instrument. The marimba was known in Guatemala and Mexico before it became popular in the United States. The marimba started becoming known in the United States in the early 20th century through events such as the participation of a Guatemalan marimba band at the Panama-Pacific Exposition in San Francisco in 1915.¹⁴² Around this same time, the Deagan Company began producing models in the United States. "In 1910-1918 [Deagan] produced the United States version of the Central American marimba, an instrument with tapered metal resonators."¹⁴³

The success of the instrument in its early years was largely the result of the efforts of Deagan and Claire Omar Musser. "The first American attempt at marimba ensembles was made in 1930 when J.C. Deagan organized and directed an elaborate stage production featuring 15 marimbas and 15 players. They played the large theaters with genuine success."¹⁴⁴ Musser further contributed to the early success and popularity of the instrument by soloing, composing, and teaching. Gordon Peters wrote, "Modern composers are becoming

¹⁴¹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 399.

¹⁴² Gordon B. Peters, *The Drummer Man: A Treatise on Percussion* (Lawton, OK: Percussive Arts Society, 2003), 134.

¹⁴³ Wilber England, "The History of the Xylophone and the Marimba," *Percussionist* 8, no. 3 (1971): 91.

¹⁴⁴ Gordon B. Peters, *The Drummer Man: A Treatise on Percussion* (Lawton, OK: Percussive Arts Society, 2003), 142.

alert to the individual tone color of [the marimba]. Percy Grainger, noted pianist, composer, and arranger, was one of the first to arrange several scores in which the marimba and the xylophone have been used for feature passages. Paul Creston, Robert Kurka, and Alan Hovhaness, among other contemporaries, have gone on to write marimba concertos.”¹⁴⁵

The earliest uses of marimba in orchestral ensembles occurred in 1930's. Some of the earliest examples include Robert Russell Bennett's *Concerto Grosso for Dance Band and Orchestra* from 1932, Howard Hanson's *Merry Mount Suite* from 1938, Gustav Holst's *Capriccio for Orchestra* from 1932, and Erich Wolfgang Korngold's score *The Adventures of Robin Hood: Suite from the Motion Picture* from 1938. Despite these early examples, the marimba was not extremely common or popular in orchestral scores until the 1970's. The popularity of marimba in orchestral percussion sections coincided with a surge in popularity and interest in the marimba as a solo instrument and with the development of a large repertoire. Despite the marimba's limitations as an ensemble instrument due to its lack of volume and inability to project, the marimba has been used with great frequency in modern scores. More than half the scores in this study include marimba parts (48 pieces).

The most unusual requests for playing the marimba encountered by the author of this study were mallet suggestions. Brian Ferneyhough instructs the marimbist to play the marimba with triangle beaters and hard wood sticks or snare drum sticks in *Plötzlichkeit* (2005), and Bernard Rands instructs the marimbist to use extremely hard plastic mallets on the marimba in his work, *...Body and Shadow...* (1988).

It should be noted that Messiaen often composed for “Xylorimba.” Both of the Messiaen pieces included in this study, *Des Canyons aux Etoiles* (1970-74) and *Éclairs sur L'au-delà* (1988-92), require a Xylorimba. In *Des Canyons aux Etoiles*, Messiaen composes for a Xylorimba in addition to a xylophone and marimba. The Xylorimba is a combination of the

¹⁴⁵ Gordon B. Peters, *The Drummer Man: A Treatise on Percussion* (Lawton, OK: Percussive Arts Society, 2003), 140.

xylophone and the marimba. Because this instrument is no longer manufactured, it is acceptable to play those parts on a regular marimba these days. In their *Dictionary of Percussion Terms*, Lang and Spivack gave the following information regarding this instrument:

There is a great deal of confusion in the use of the terms “xylophone”, “xylomarimba”, “xylorimba”, and “marimba” in the music of Boulez, Messiaen, Stockhausen, etc. In discussing this problem with Pierre Boulez, former Music Director of the New York Philharmonic, he indicated the following: The “xylophone” is an unresonated three octave instrument (C-C), while the “xylorimba” or “xylomarimba” is a resonated instrument of three or, in some works, four octaves (C-C). The “marimba” is a four octave resonated instrument.¹⁴⁶

Chimes:

Chimes, also known as tubular bells, are a slightly newer instrument that is frequently used by modern composers and has become an acceptable and common replacement for older compositions requiring bells or church bells. Church bells were common in Europe from the 13th century onwards.¹⁴⁷ Composers who first wrote for bells most likely had actual cast bell sounds in mind. Peinkofer and Tannigel wrote that, “Since the end of the 18th century, bells and chimes have been used both on stage and in the orchestra. The impossibility of installing large, cast bells with their enormous weight and their timbre designed to carry great distances, gave rise to the search for suitable substitutes.”¹⁴⁸ They went on to explain that, “While acceptable bell substitutes from C upward have been found, such as bell plates, square steel rods, tubular chimes, and small bronze bells, the simulation of low-pitched bells continues to be a problem. Composers, deceived by the strong and prominent low reverberations of bells, often venture far below the lowest possible pitches.”¹⁴⁹ Sounding metal tubes have a long history but, as an orchestral substitute for bells or a specifically desired sound, they began being used in the late 19th century orchestra. It is difficult to pinpoint the first use of chimes in the orchestra. Berlioz

¹⁴⁶ Morris Lang and Larry Spivack, *Dictionary of Percussion Terms as Found in the Symphonic Repertoire* (Brooklyn, N.Y.: Lang Percussion Inc., 1997), 64.

¹⁴⁷ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 64.

¹⁴⁸ *Ibid*, 65.

¹⁴⁹ *Ibid*, 65.

calls for two bells in his *Symphony Fantastique* from 1830. Bass chimes, bell plates, or cast bells are all common and acceptable solutions to that sound. The substitution of chimes for bells in earlier compositions is common as a solution for ensembles with limited budgets and means, such as high school orchestras or community ensembles. Appropriate substitutions for bells will depend on the intended range of the bells, intended sound quality, and common performance practice. As chimes became more commercially available throughout the 20th century, composers began writing specifically for that instrument, taking away any possible confusion. The chimes, as a modern instrument, are a frequent and popular choice by composers. Roughly two-thirds of the pieces examined for this study include parts for chimes (56 pieces).

While not a playing technique, extended range is the most common “extended technique” request for the chimes. Depending on the manufacturer, the range of a typical set of chimes can vary. Typical ranges today are from C-F or G (one and a half octave). Older Deagan models went lower, often covering an octave and a half from A-E. However, despite the discrepancies in ranges, some composers continue to write very much out of those ranges. Many composers prefer much lower notes, such as Lutoslawski in his *Concerto for Cello and Orchestra* (1970), or Boulez in his *Notations* (1978). Ellen Taaffe Zwilich pushed the higher end of the range by writing for a high A in her *Symphony No. 4* (1999). Typically, when extended chime ranges are needed, orchestras must rent those notes or have them specially manufactured by someone with the ability to tune chimes. Unfortunately, for groups that do not have the budget for such expenses, the notes are usually just displaced by an octave.

One unusual request regarding the chimes reflected in this study came from Lutoslawski, who asked the percussionist to knock the chime notes against each other in his *Concerto for Cello and Orchestra* (1970). Another unusual request was the 3 or 4 mallet chimes parts written by Gunther Schuller in his *Four Soundscapes for Orchestra* (1975). Other unusual

requests involve mallet selection. The most common of these are requests for metal mallets or triangle beaters, wire brushes, and yarn or other soft mallets.

Crotales:

Crotales, or antique cymbals as they are also known, are an ancient instrument that were introduced into the orchestra by Berlioz in his *Romeo and Juliet* of 1839. Berlioz had these instruments manufactured and modeled after instruments that he saw in the then recently unearthed ruins of Pompeii. Peinkofer and Tannigel wrote that after Berlioz, “[The crotales’] subsequent use remained quite sporadic, however, because the technique of casting them was slow in developing.”¹⁵⁰ Regardless of the difficulties of manufacturing the crotales, they continued to be used throughout the 19th century and with increased frequency in the 20th century. Blades wrote that, “The manufacturers of musical instruments have responded admirably to the continual expansion of ideas on the part of the composer, and the constant demand of performers for the ultimate. Messrs. Zildjian, together with their wide range of [sic] cymbals and gongs have made available a large range of crotales, (instruments used so advantageously by Petrassi, Nono, Dallapiccola, Richard Rodney Bennett, Peter Schat and others).”¹⁵¹ The crotales remain quite popular today. Forty-two pieces from this study include parts for crotales.

Unusual requests for playing the crotales include bowing the crotales. Like the bowing of vibraphone bars, this may be a more recent technique judging by the omission of this method from Gardner Read's 1953 *Thesaurus of Orchestral Devices*. Other requests include George Crumb's instruction to shake the crotales in order to produce an oscillation in pitch in his *Echoes of Time and the River* (1967) and Jennifer Higdon's request to place the crotale upside-down on the timpani head and strike with a mallet while moving the timpani pedal in her *Violin Concerto*

¹⁵⁰ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 61.

¹⁵¹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 427.

of 2009. Other common requests are related to mallet choices, including the use of metal mallets or triangle beaters, rubber mallets, soft mallets, and wooden sticks or snare drum sticks.

Bell Plates:

Bell plates, while sometimes called for specifically by composers, are, like the chimes, often used as a substitute for bell sounds. Peinkofer and Tannigel wrote that, “Bell plates convey not so much bell sounds with precise strike tones as sounds resembling distant bells.”¹⁵² One thing that is generally true for all the percussion instruments is that modern composers, with all the choices available to them, tend to be very specific about the instruments and sound choices that they desire. The bell plate is still used from time to time and is specifically requested for use in six of the compositions examined for this study.

Unusual stick or mallet requests by composers of works in this study suggest that an authentic bell sound is not what they had in mind. Christopher Rouse instructs the percussionist to play the bell plates with a hammer in his 1984 work *Gorgon*, and Rodion Shchedrin requests that the bell plate be struck with a metal mallet in his 1990 work *Old Russian Circus Music: Concerto No. 3 for Orchestra*.

Effect Instruments:

The auxiliary, or effect instruments, as defined in the previous chapter, include any instruments that are used as a sound effect and any of the other small “toys” found in the percussion section. These instruments include the bell tree, mark tree (or wind chimes), woodblocks, temple blocks, slapstick, ratchet, log drums, sandpaper blocks, castanets, almglocken/cowbells, Flexatone, sirens, sleigh bells, wind machine, thunder sheet, lion’s roar, horns/whistles, ocean drums, finger cymbals, and anvils. Many of these instruments have

¹⁵² Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 68.

existed in some form or another in a number of cultures around the world going back to ancient times. For a majority of these instruments, their original appearances in opera orchestras and symphonic works were as sound effects. However, very soon after each of their individual appearances, composers began using them not in imitative ways, but as colors of a potential sound pallet. Due to the variety of instruments to choose from in this category it is perhaps not surprising that a majority of the pieces in this study include at least one of these instruments (72 pieces out of 87 pieces). Most of these instruments have maintained a steady and constant usage over the years. Below is a list reflecting the popularity of these instruments by usage in this study:

Frequency of uses:

Woodblock: 42
 Temple Blocks: 31
 Almglocken/cowbell: 25
 Whip/Slapstick: 24
 Mark tree/Wind chimes (glass, bamboo, wood, shell): 16
 Castanets: 15
 Ratchet: 13
 Sleighbells: 13
 Anvil: 12
 Log drum: 10
 Flexatone: 9
 Whistle: 8
 Sandpaper blocks: 7
 Thunder sheet: 7
 Bell tree: 6
 Lion's Roar: 6
 Wind Machine: 4
 Finger Cymbals: 3
 Geophone/Ocean drum: 2
 Rain Stick: 1

The instruments on the list above represent a mixed bag of sound effects, some with longer histories than others. The popularity of each of these instruments can perhaps shed some light on what modern composers prefer when it comes to choosing timbres.

The use of effect instruments before the 20th century was quite limited. Most of the instruments listed above were either inventions of the twentieth century, or reflect

advancements of more primitive instruments. A few of the instruments listed above found their way into the orchestral timbral palette from dance bands and from the medium of film.

Prior to about 1920, a few of the instruments listed above had already found their way into orchestras with some regularity.

It is in the works of the Parisian composers of the first half of the nineteenth century that we find a marked change of colour in the percussion section of the orchestra, resulting from an extension of the use of the now permanent members, and the introduction of further instruments. In 1800 Boieldieu scored for two triangles (high and low) in his opera *Le Calife de Bagdad*. Auber gave the anvil (*enclume*) a place in his scores of *Le Maçon* (1825), as also did Halévy in *La Juive* (1835) and Berlioz three years later in *Benvenuto Cellini*. About this time we find the whip (*fouet*) in a composition by G. Kastner (*Les cris de Paris*). Kastner's score also includes an alarm bell (*beffroi*), jingles (*Grelots*) and the anvil. The gong occurs in works by Gossec, Spontini, Halévy, Meyerbeer, Cherubini, and, as we have seen, Berlioz. The tambourine was at this time, according to Berlioz, in considerable orchestra use. We find it in Weber's *Preciosa* (1820). Berlioz occasionally calls for two tambourines (two players) and in *Harold in Italy* for three...Bizet is quoted as the first composer to use the castanets in orchestra music in *Carmen* (1875), concert version and cued in the opera score. Wagner employs them earlier in the Venusberg music in *Tannhäuser* in the revised edition of the opera for performance in Paris in 1861.¹⁵³

The most frequently used sound effects prior to the 1920's were the castanets, ratchet (or rattle as it is sometimes referred to in early scores), and sleigh bells. Clappers in various forms are common to many cultures around the world. However, castanets in their current form as found in the orchestra were inspired by the form traditional to Spain. Peinkofer and Tannigel wrote that, "The form best known today was developed in Spain, a center of the art of dancing ever since Antiquity...Castanets did not become popular elsewhere because of the formidable difficulty of playing them. They were bound up with folklore and became separated from it only through their use in the orchestra."¹⁵⁴ Early composers using the castanets included Bizet, Wagner, Tchaikovsky, Saint-Saens, and Rimsky-Korsakov. Blades wrote that,

In the standard orchestra repertoire composers, as might be expected, have made extensive use of castanets to colour Spanish dance rhythms, these so

¹⁵³ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 291.

¹⁵⁴ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 142.

frequently in triple time with the central digit sub-divided...Like the tambourine the use of orchestral castanets is not restricted to local colouring; their individual (and penetrating) clicking sound is utilized for rhythmic and other purposes in compositions very diverse in character, such as the rhythmic structure in Prokofiev's Third Piano Concerto, and the plaintive cry of the night bird in Britten's *Let's Make an Opera*. Milhaud scores for *castagnettes de bois* and *de fer* in *Les Choéphores* (1915).¹⁵⁵

Peinkofer and Tannigel further cite Richard Strauss' use of the castanets in *Salome* as helping to divorce the instrument from its traditional Spanish connotations. The castanets have maintained their popularity and are still commonly used.

Rattles and ratchets (also known as "bird scarers") have been used in classical music since the late 18th century. Rattles were common in Europe for many centuries before they found their way into the orchestral genre. "The rattle (ratchet) was employed in the Roman churches especially during Holy Week when the bells were silent, when according to legend 'they fled to Rome.'"¹⁵⁶ One of the earliest examples of the rattle in orchestral literature is in the *Toy Symphony*. Blades wrote, "A sense of fun is apparent in the *Toy Symphony*: for so long attributed to Haydn, this work is now considered to be by Leopold Mozart. The toy instruments, possibly added by Michael Haydn, include a drum, triangle, rattle, quail and cuckoo."¹⁵⁷ Beethoven used ratchets in his 1813 work *Wellington's Victory* to represent rifle fire, along with bass drum to represent cannon fire. Blades credited Handel with the first use of gunfire in an orchestral ensemble.¹⁵⁸ Later well-known examples include the use of a ratchet playing a rhythmic figure in Respighi's *Pines of Rome* and the rattle in Richard Strauss' work, *Till Eulenspiegel*.

Sleigh bells, which are often now identified with Christmas music because of their prominent role in Leroy Anderson's now standard 1948 work *Sleigh Ride*, have been used by many composers without intention to evoke the thought of Christmas. Tuned sleigh bells were

¹⁵⁵ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 388.

¹⁵⁶ *Ibid*, 195-196.

¹⁵⁷ *Ibid*, 260.

¹⁵⁸ *Ibid*, 253.

used by Mozart in his *German Dances* K. 605.¹⁵⁹ The sleigh bells were also used famously by Mahler in his *Symphony No. 4*. Other famous examples include “Troika” from Prokofiev’s *Lieutenant Kijé Suite* and Rimsky Korsakov’s *The Legend of the Invisible City of Kitezh*. Sleigh bells as a sound effect would logically have a strong association with winter, and it seems that their overexposure in both orchestral Christmas pops music and even their prominent use in radio Christmas pop music has not diminished their potential to modern day composers.

While the castanets, rattles, ratchets, and sleigh bells are still in popular use, they have taken a back seat in popularity to the woodblock and temple blocks which currently reign supreme. Blades remarked of the woodblock that, “Considering its antiquity, it is a later arrival in the western orchestra, being introduced into the standard orchestral repertoire only by twentieth-century composers.”¹⁶⁰ In earlier uses of the woodblock, the sound was often used to evoke an Oriental flavor (hence the term “Chinese wood block” or “Chinese block” which is used interchangeably with “wood block”) or as a sound effect, sometimes imitating horse hooves. The temple blocks, which are very similar to the wood block in design but often manufactured in sets, were also used in the earlier part of the 20th century by composers to achieve an Oriental sound. Blades wrote, “In contrast to the wood block, which is normally used singly, temple blocks, the name by which the traditional ‘wooden fish’ of the Orient is known in the western orchestra, are used in varying numbers, most frequently in pairs (high and low). The use of these instruments in the modern orchestra (as with the wood block) is probably due to the influence of the jazz of the 1920’s, in which both were a feature (cf. Chinese section).”¹⁶¹ Modern temple blocks are currently manufactured by a variety of percussion companies in sets of five. Composers’ increasing attention to these sets of blocks is another reflection of the trend of modern composers to write melodic lines for relatively pitched instruments.

¹⁵⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 265.

¹⁶⁰ *Ibid*, 390.

¹⁶¹ *Ibid*, 390-391.

Strictly speaking, Almglocken and cowbells are one in the same. Almglocken is the German word for cowbell as is often used to differentiate tuned cowbells (sometimes with clappers), as used by Mahler in his symphonies, to single cowbells. Unpitched cowbells are often used by drumset players on their drum kits and frequently find their way into the rhythm sections of pop and rock bands. These untuned clapperless cowbells are often distinguished as “Latin” cowbells. Peinkofer and Tannigel wrote that “In concert music of the late Romantic period the use of animal bells was limited to the musical depiction of grazing flocks, naturally without concern for exact pitches.” However they go on to distinguish between these types of cowbells and the kind associated with Latin beats and dance bands. They wrote, “When dealing with music having jazz-related elements the term metal block, already mentioned, is generally the more appropriate term for the short-sounding cowbell.”¹⁶² Both tuned and untuned cowbells are innovations of the 20th century. The most unusual technique requested for these instruments from this study is made by Magnus Lindberg, who instructed the percussionist to bow an Almglocken in his 1983-85 work, *Kraft*.

The slapstick, or whip as it is also called, is another simple instrument cited by Blades as being introduced into orchestral literature by the 19th century Parisian composers.¹⁶³ Later uses of the whip include works by Mahler, Richard Strauss, and Varese. Other innovations of the Parisian composers included the use of anvil sounds as by Auber in *Le Maçon*, as well as in pieces by Gounod and Bizet.¹⁶⁴

Various kinds of wind chimes have become popular in recent years both in orchestral literature and as porch decorations. The Mark Tree refers to a popular model made of small, hanging metal tubes. “Mark Stevens, a studio musician Los Angeles invented the Mark Tree in 1967. The Mark Tree is also known as Bar Chimes. Although it is often referred to as Wind

¹⁶² Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 131.

¹⁶³ “About this time [first half of the 19th century] we find the whip (*fouet*) in a composition by G. Kastner (*Les cris de Paris*)” (James Blades, *Percussion Instruments and Their History*, 291).

¹⁶⁴ *Ibid*, 392.

chimes or Bell Tree, neither of these terms are correct.”¹⁶⁵ Despite the discrepancies in terminology, Mark Tree or Wind Chimes are terms that are often used interchangeably by composers. Wind chimes can be made of practically any material. In addition to the popular metal variety, composers often call for glass, bamboo and shell wind chimes. The wind chimes or Mark Tree are not to be confused with the “bell tree.” The bell tree, based on instruments of Eastern origin, can produce a bell gliss of inexact pitch.

The Flexatone, invented in 1922 and patented in the United States in 1924, has, despite being somewhat of an odd novelty, remained in use as a viable percussion instrument.¹⁶⁶ Some well known composers have given the Flexatone parts in serious compositions and, by doing so, legitimized its place as an acceptable timbre in an orchestra setting. Schoenberg wrote for the Flexatone in his 1928 work, *Variations for Orchestra*. Khachaturian gave the Flexatone a place in his 1936 work, *Concerto for Piano and Orchestra*, and Shostakovich even included the Flexatone in his 1928-29 work, *New Babylon*. While the Flexatone still appears only sporadically in orchestral pieces, some composers make somewhat regular use of the odd instrument, including Hans Werner Henze, Peter Maxwell Davies, William Kraft, Krzysztof Penderecki, and Alfred Schnittke.

The remaining sound effects used in the pieces contained in this study - including log drums, whistles, sandpaper blocks, thunder sheets, lion’s roar, wind machine, finger cymbals, ocean drum and rain sticks - are further examples of the many sound effects available to composers. Some of these instruments, such as the wind machine, found use in the early 20th century in compositions by Ravel and Richard Strauss. Other sound effects, such as the ocean drum, have been used by composers such as Messiaen. Because the instruments from this category have become relatively common and are frequently requested by composers, most are

¹⁶⁵ Richard Schwartz and Ed Cole, "Mark Tree" *Virginia Tech Multimedia Music Dictionary*.

¹⁶⁶ "An instrument called the 'Flex-a-tone' was patented in the U.S.A. in 1924 by the Playertone Company of New York. It was introduced as a new instrument, making 'jazz jazzier' and announced as combining the tone effect of musical saw, orchestra bells, and song whistle" (James Blades, *Percussion Instruments and Their History*, 393).

available for purchase from a variety of manufacturers. Composers, of course, continue to find new sounds to explore, and many new innovations are unique and must be created from scratch by percussionists. Examples of such sounds will be further discussed under the heading “found objects.”

Unusual techniques required for the effect instruments are far fewer than for instruments of the standard percussion or mallet battery due to the fact that most effect instruments are simply scraped, shaken, or rubbed. Only the instruments that are played with some kind of stick or mallet, such as woodblocks, temple blocks, and log drums, have been subject to special technique requests by the composers in this study. Those requests include various mallet choices as well as techniques associated with playing with sticks or mallets, such as dead stroking, as was requested by Brian Ferneyhough in *Plötzlichkeit*.

Timpani:

Timpani, the longest standing percussion members of the orchestral ensemble, are still used regularly and frequently in orchestral compositions. Interestingly, fewer pieces from this study involve timpani than involve other members of the standard percussion battery or the standard mallet battery. This is not to say that use of timpani has decreased in popularity. On the contrary, timpani parts are more prevalent than ever. However some composers have written pieces that include large percussion forces but no timpani. Olivier Messiaen's *Des Canyons Aux Etoiles* (1970-74) involves seven percussionists playing 36 instruments, but no timpani. Likewise, Magnus Lindberg's work *Kraft* (1983-85) requires four percussionists playing 86 instruments, but no timpani. Seventy-two out of 87 pieces included in this study involve timpani parts. Of the pieces from this study that include timpani, more than half feature timpani playing solo notes or passages (41 pieces). Additionally, more and more challenging timpani parts continue to be written by composers. Whether or not that trend has reached its peak is hard to say, but what is certain is that, as parts get technically harder and demands for quick

tuning changes increase, drum designs will surely continue to evolve to accommodate those changes. Likewise, as solo and ensemble timpani repertoire grows more challenging, skills of timpanists will rise to meet those needs.

Many trends that were common to timpani parts that were fairly new as of 1960 have become common elements of timpani playing today. The most obvious of these trends is the use of extensive tuning. The days of setting two pitches on two drums and playing an entire work are long gone. It seems that even the simplest timpani parts today require at least a couple of tuning changes. At least 21 of the pieces included in this study have extensive tuning, while many more have moderate tuning. Extensive tuning is not a new phenomenon. Ever since machine drums became popular, composers have been taking advantage of the ability of the timpanist to change pitches while playing. The earliest examples of this trend date back to the turn of the 20th century, with compositions such as Richard Strauss's 1895 work *Til Eulenspiegels lustige Streiche*, which requires at least 24 tuning changes throughout the piece, some while playing.¹⁶⁷ Thirty-eight of the pieces included in this study were deemed by the author to require tuning gauges. The use of tuning gauges can be subjective to the individual timpanist; however, in at least 38 of pieces there are instances in which tuning changes must be made while other drums are being played or in other instances where the timpanist would not have time to retune and check the pitch by ear.

Another element common to modern day timpani parts is the continued use of extended and often extreme ranges of the timpani drums. The typical ranges of a standard set of four timpani drums can vary slightly depending on the size. For the purposes of this study a standard sized set of drums is assumed to be 32", 29", 26", and 23". Occasionally, the drum heads can be tuned higher or lower to achieve special pitches, but the regular ranges of a standard set of drums as given by Peinkofer and Tannigel are as follows:

32": Low D-A

¹⁶⁷ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 83.

29": Low F-D

26": Bb-F#

23": E-B

Edmund A. Bowles, in his contribution to *Encyclopedia of Percussion* edited by John H. Beck, wrote that "Kettledrums are available in standard sizes from 20 to 32 inches in diameter, with an approximate pitch range from high b-flat to low D. Typically, a set of four instruments will be found in the modern orchestra."¹⁶⁸ As early as the beginning of the 20th century composers were writing parts pushing those ranges. One such example is Gustav Mahler's *Symphony No. 7* from 1906 which requires a low D-flat. Other pieces, such as Stravinsky's 1913 work, *Le Sacre du Printemps*, push the timpani into its highest ranges and additionally require the use of a piccolo timpano. Gardner Read provided an extensive list of pieces requiring extended ranges in his 1953 work, *Thesaurus of Orchestral Devices*.¹⁶⁹ Quite a few accommodations have been made over the years to facilitate the highest pitches on the drums. One is the piccolo timpano, which can be added to a standard set. Also, roto-toms, which are discussed in further detail later in this chapter, are easily tunable and are therefore a suitable extension of the upper range of the timpani. From a technical standpoint, notes from the highest range of each timpani drum are typically better sounding and clearer than notes from the lowest ranges of the drums because the head is stretched tightly over the rim. Because of this, achieving pitches outside of the high end of the standard timpani range usually achieves a better result than extension on the lower end. Many pieces from this study extend the higher range of timpani, including works by Ginastera, Kraft, Barber, Druckman, Reich, Kurtág, Corigliano, Saariaho, Adès, and Zwilich. The highest notes required from this study occurred in Thomas Adès' 1997 work *Asyla*, which requires a range extending up to a high D.

¹⁶⁸ John H. Beck, ed., *Encyclopedia of Percussion* (New York: Garland Publishing, Inc., 1995), 201.

¹⁶⁹ Read explains "extended range" for timpani as above F# and below E, which is somewhat smaller than what is being considered extended range for this study.

Many pieces in this study push the timpani into its lowest ranges. Works by Salonen, Zwilich, Lindberg, Saariaho, Corigliano, Rands, Kurtág, Wuorinen, Kraft, and Barber all require that the lowest timpani reach a low C. The lowest note requested by a composer from a piece in this study is a Bb below low C, requested by Thomas Adès in his *Violin Concerto: Concentric Paths* (2005). The question then becomes; at what point does the pitch requested become unrealistic for a standard 32" timpano? Perhaps, just as piccolo timpani and roto-toms have been invented to accommodate the highest pitches, a bass timpano will be created to accommodate the wishes and imaginations of composers.

There are several extended techniques or unusual requests for playing the timpani that have become quite standard over the course of the 20th century. The most common of these is the glissando. Ever since the advent of pedal-operated timpani composers have been requesting glissandos. The first known use of a glissando occurs in Walford Davies' 1914 work, *Conversations for Piano and Orchestra*. Other prominent examples of the glissando include Bartok's 1943 *Concerto for Orchestra*. In fact, this technique has become so standard that at least half of the works examined for this study request glissandos. Other common extended technique requests include variations on playing areas, including the center, edge, rim, and the shell of the drum. Other extended techniques with precedent include using implements such as wire brushes on the timpani. The 1933 work, *Fugue for Eight Percussion Instruments and Piano*, by William Russell, "Calls for unusual effects: sweeping a wire brush across a timpani head near the rim; striking the kettle itself with a triangle beater, for example."¹⁷⁰ Requests for playing the drums coperti or muffled are also quite common and have long and established history dating back to the time of Mozart. Other techniques, such as hitting one drum with two sticks at the same time have precedent in the earlier part of the 20th century with pieces such as Gustav Mahler's *Symphony No. 4* from 1900. Requests for at least two-note chords on timpani

¹⁷⁰ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 85.

date back to the time of Beethoven. More recently, composers such as Shchedrin and Adès have written three-note chords on timpani, requiring the timpanist to hold three sticks at once.

Much newer innovations that are more unique to the past 50 years include using the timpani as a secondary sound-enhancing device. For example, some composers instruct players to lay an instrument, such as a cymbal or crotale, on the timpani head and then to play that instrument. The resulting effect is an amplified echo of the sound of the instrument being played with the ability to distort the echo pitch by changing the tension of the timpani head. Bowles mentions what may be one of the earliest instances of this effect by Arthur Bliss in a 1958 work entitled *Meditations on a Theme by John Blow* in which he calls for two cymbals to be placed on the timpani heads and to be struck with glockenspiel mallets.¹⁷¹ In addition to cymbals placed on timpani heads to be struck, rolled, or bowed, other more recent requests include playing the triangle on the timpani head, placing Japanese Temple Bowls on the timpani heads, and placing a crotale upside-down on the timpani head. Additionally, some composers request that the timpani be struck with an unusual implement that is not a mallet. Leonard Bernstein, in several of his compositions, instructs the timpanist to hit the timpani head with a maraca, but as far as the author can tell, this effect is unique to Bernstein.

It is well documented that Berlioz was the first composer to specify stick preferences on the timpani. He called for wooden sticks in his *Symphony Fantastique* and, while wooden sticks were frequently used prior to that work, after Berlioz it became more common to see composers making a distinction between soft and hard mallets. More irregular requests appeared in the years following. Bowles pointed to Edward Elgar's 1899 work *Enigma Variations*, writing that Elgar was, "Probably the first composer to specify striking the timpani with other than regular mallets: snare-drum sticks are called for in No. 13. Often, this passage is played with two coins held between the fingers, a substitution demonstrated for Elgar by the London Symphony

¹⁷¹ Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 85.

Orchestra's timpanist, Charles Henderson."¹⁷² It is common today for composers to specify soft, medium, or hard timpani mallets. For that reason, those occurrences were not documented in this research. Specific requests for wood sticks, playing with the butt of a stick, or a snare drum stick were documented, although these requests have become extremely common. Less common but still regular requests include the use of wire brushes on the timpani, or the use of fingers or hands to play the drums.

The Standard Latin Battery:

The standard Latin battery, as defined in the previous chapter, includes any instrument that came from Central or South America. These instruments include claves, bongos, congas, timbales, maracas, guiro, shakers, Quica, Cabasa, and jawbone (vibraslap). About half the pieces examined in this study include Latin percussion instruments (44 pieces). Of those pieces, 26 include some kind of solo moment for a Latin percussion instrument. The Latin percussion instruments were examined separately from the other drums or auxiliary instruments in this study to distinguish their unique origins. Like the other percussion instruments that were introduced into the orchestral ensemble with an ethnic flavor, modern composers rarely use these instruments in a specifically Latin-American way. The bongo drums, for example, are just another option for the numerous membranophones to choose from, as are the congas and timbales. Because of this, many of these instruments are played with sticks or mallets rather than the hands, not requiring specialized technique that might be more authentic to the instrument. Instruments like the maracas, claves, and gourds were introduced into the orchestral ensemble in a similar manner to the woodblocks, temple blocks, and other instruments associated with jazz and dance bands of the 1920s and 1930s. Like the auxiliary instruments, Latin percussion instruments have maintained a steady and constant usage over the years. Below is a list reflecting the popularity of these instruments by usage in this study:

¹⁷² Edmund A. Bowles, *The Timpani: A History in Pictures and Documents* (New York: Pendragon Press, 2002), 83.

Frequency of use:

Bongos: 31
 Maraca: 25
 Claves: 21
 Guiro/rap/réco-réco/gourd: 20
 Timbales: 13
 Conga: 11
 Vibraslap/Jawbone: 5
 Shaker/Chocalho: 6
 Cabasa: 3
 Quica: 1

The earliest uses of the Latin instruments tended more frequently to be evocative of a Latin-American feel. Early examples include such works as Aaron Copland's *Danzon Cubano* from 1942 (orchestrated in 1944) in which he composes for claves, maracas, and gourd. Copland's *El Salon Mexico* (1933-36) also requires gourd. George Gershwin's *Cuban Overture* from 1932 calls for gourd, bongos, maracas, and claves. Carlos Chavez called for clay rattles (maracas), metal rattles, claves and guiro in his *Symphony No. 2 "Sinfonia India"* (1935-36). Morton Gould wrote for gourd, claves, and shakers in his *Latin-American Symphonette* of 1940. These earlier pieces, as is evidenced by their titles, reflect a deliberate Latin-American flavor, and are also a reflection of the beats and instruments of the of the dance bands that popularized this type of music in the 1930s. It was during the 1940s and 1950s that these instruments began to be used independently of their traditional associations by composers such as Messiaen, who used maracas in his *Turangalila-Symphonie* (1946-48) and his *Trois Petites Liturgies de la Presence Divine* (1945).

Like the standard auxiliary instruments, most unusual technique requests for the Latin instruments pertain to the instruments that are played with sticks or mallets, in this case the membranophones: bongos, congas, and timbales. Recorded in the appendix of this study are instances of composers requesting the use of brushes, fingers or other implements on these instruments. While drumsticks or other mallets are not traditionally used for playing congas or bongos, those are the common implements that an orchestral percussionist would likely use to play these drums today. Therefore the use of sticks or mallet on congas and bongos have not

been designated by this study as “unusual technique requests.” The other instruments, such as the shakers, claves, vibraslap, maracas, and Cabasa, are scraped or shaken to produce sound. Therefore alternative techniques for playing those instruments are limited.

Other Ethnic or Unusual Instruments:

Other ethnic instruments or unusual instruments, as defined in the previous chapter, include instruments from cultures that do not historically have a place in orchestral music.

Bells:

Bells of varying types and representing a number of cultures were very popular among composers of the pieces included in this study. The variety of bells and the frequency with which those bells are requested in pieces from this study are listed below.

Frequency of uses of bells:

Small bells and high pitched bells: 3
 Handbells: 3
 Elephant bells: 2
 Indian bells: 2
 Christmas bells: 1
 Dog collar bells: 1
 Japanese bells: 1
 Chinese bells: 1
 Little hand bells: 1
 Bicycle bells: 1
 Geisha bells: 1
 Pakistan Noah bells: 1
 Temple bells (Japanese): 1
 Electric bells: 1

Gongs:

As discussed earlier in this chapter, the term “gong” is used in this study to refer to the pitched instrument. Requests for a variety of ethnic gongs were quite frequent in pieces contained in this study. The types of gongs and frequency of requests are listed below.

Frequency of specific gong requests:

Pitched gongs, nipple gongs, Chinese gongs, Chinese water gongs, Thai gong, Javanese gongs: 23
 Japanese temple bowls (bowl gongs, cup bowls): 5
 Water gongs: 2

Ethnic Drums:

The term “Ethnic drum” is used in this study to describe drums from any culture that does not have historical ties with western orchestral music. Over the past 50 years, drums from cultures around the world have been making more frequent appearances in modern orchestral scores. The ethnic drums encountered in the pieces of this study are listed below:

Frequency of ethnic drum requests:

Chinese drum (as specified, see tom-tom): 4
 Arabic or Turkish drums (darabuka): 2
 Indian drum: 2
 Tambourin provençale/Tambour de Provence: 2
 Bodhràn: 1
 Djembe: 1
 Israeli hand-drum: 1
 Hand drum: 1
 Tablas: 1

Roto-Toms and Boo-Bams:

Roto-toms and Boobams are newer instruments that have been invented and introduced into the percussion section within the past 50 years. Near the end of his book, Blades wrote, “Other (recent) membrane instruments include chromatic *boobams*, a series of small tunable drums with deep resonators, and *roto-toms*: small drums tuned by rotary motion...”¹⁷³ The creation of the roto-toms is attributed to Al Payson, former percussionist with the Chicago Symphony Orchestra. “As an entrepreneur, Payson developed several products that are used by percussionists around the world. Among these are aluminum-shaft timpani mallets with a textured, vinyl grip; tunable, pitched ‘timp-tops’ that were developed by Remo into RotoToms; and the ‘Jonesie Stick Tote,’ the original stick bag used by drummers to hang sticks from their

¹⁷³ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 376.

floor tom.”¹⁷⁴ The two most common ways that roto-toms are used in orchestras are as a set of tunable drums, or as an extension of the upper range of the timpani. The roto-toms are used in both these ways by the composers of the pieces contained in this study. Eight pieces from this study require roto-toms, indicating that this modern instrument has become a standard instrument selection for modern composers.

The boobams, according to the Percussive Arts Society museum website, “...are tuned bongos constructed with a shell of natural bamboo. The available width and depth of the shell, which contributes to the desired pitch, is limited only by the size of available bamboo found typically in the tropical islands of the Pacific Ocean. Although boobams appear as ethnic drums in these areas, the modern instrument found its way into current use through its appearance on numerous recordings in Hollywood beginning in the 1950s. A modern version of boobams, using synthetic or wood shells not of bamboo, is marketed under the trade name of Octobans.”¹⁷⁵ The earliest uses for the boobams were “...for numerous recording sessions in the Los Angeles studios. Their first use was on the track ‘The Sound Effects Manne’ recorded with Russ Freeman on September 14, 1954.”¹⁷⁶ Peinkofer and Tannigel wrote in 1969 that, “The use of the boobam in the United States was at first confined to popular music, usually in combination with other unusual percussion instruments. Its use in recording studios as a special sound effect came later.”¹⁷⁷ While the boobams only appear in two pieces included in this study, their presence at all suggests that these instruments have become a known option to composers and may continue to appear in orchestral scores in the coming years.

Rute:

¹⁷⁴ James A. Strain, “Al Payson,” (Percussive Notes 39, no. 4, 2001), 17.

¹⁷⁵ Percussive Arts Society Museum Website.

¹⁷⁶ *Ibid.*

¹⁷⁷ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 99-100.

The rute, also called a switch, is a bundle of twigs that was the original playing implement for the bass drum during the time of Mozart and Haydn. Peinkofer and Tannigel wrote, "The orchestral beating switch was first used to portray the impression of the sounds of beating or whipping. Eventually its strange noise was also used as an abstract sound effect."¹⁷⁸ When playing techniques for the bass drum changed in the beginning of the 19th century, the rute fell out of favor for nearly 100 years, until composers such as Mahler revived the technique of hitting the shell of the bass drum with a rute as in his third symphony from 1895.¹⁷⁹ Three compositions contained in this study include the use of a rute, indicating that, since the revival of its usage at the turn of the last century, this implement is experiencing continued use in modern compositions.

Steel Drums:

The steel drum is a relatively modern instrument. "Pan and the steel band were created and developed by predominantly Afro-Trinidadian lower-class urban dwellers on the islands of Trinidad and Tobago during the early to mid-1930s."¹⁸⁰ While steel pan playing has a unique history and development, modern composers are not likely to use the steel pan in its traditional style. Peinkofer and Tannigel wrote that, "The steel drums of the native musicians of Trinidad may be considered a new variation of gong sets."¹⁸¹ This characterization more aptly describes how orchestral composers are likely to incorporate this instrument into their compositions - as simply another pitched timbre. While it takes special training to become highly proficient on steel drums, even a percussionist without special training or knowledge of steel pan tradition should be able to play simple parts by learning the correct playing areas of the pan. Three

¹⁷⁸ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 138.

¹⁷⁹ James Blades, *Percussion Instruments and Their History* (Connecticut: The Bold Strummer, Ltd., 1992), 100.

¹⁸⁰ Jeffrey Thomas, "Steel Band/Pan," *Encyclopedia of Percussion* (New York: Garland Publishing, Inc., 1995), 297.

¹⁸¹ Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments* (New York: Belwin-Mills Publishing Corp., 1976), 63.

compositions included in this study from the 1980s and later make use of the steel drum, signifying that the popularity of this instrument in orchestral ensembles may be just beginning.

Other Ethnic or Unusual Instruments:

A number of other unusual, ancient, or ethnic instruments appeared in the pieces contained in this study. The following list documents the type and frequency of requests for these instruments:

Other Ethnic or Unusual Instruments:

Cymbalettes (jingles on a stick) or sistrum: 2
 Anklung (bamboo shakers): 2
 Bass xylophone: 1
 Marimbula (African harp): 1
 Thunderstick (bull roarer): 1
 Japanese wind chimes: 1
 Russian spoons: 1
 Waterphone: 1
 Keprak (wooden slit drum from Indonesia): 1
 Gentorak (Balinese bell tree): 1
 Mokubios (high-pitched Japanese woodblocks): 1
 Keisu (Japanese temple instrument, also called a Dobači): 1
 Den Den Daiko (Japanese toy instrument: high woodblocks): 1
 Theremin: 1
 Lujon (very large kalimba): 1

While each instrument on the above list does not appear frequently enough to be considered a new trend, the variety of instruments on the list above reflects the diversity of cultures and instruments that modern composers are willing to explore as possible new timbres for their compositions.

“Found” Instruments:

“Found” instruments, as described in the previous chapter, are often household objects or “junk” and are typically not manufactured by any specific company. The following list documents the type and frequency of “found objects” encountered in the pieces of this study:

Frequency of requests for found instruments:

Horns:

Car horns: 1

Fog horns: 1

Sirens: 4

Metals:

Metal block: 4

Metal plate: 4

Brake drum: 5

Spring coil: 2

Tin drums: 1

Tins: 1

Small can (metal or square tin): 1

Bag full of knives and forks: 1

Saucepan: 1

A piece of iron/metal: 1

Metal slab rubbed with file: 1

Woods:

A piece of wood: 1

Sticks: 1

Box: 1

Glass:

Champagne glass: 1

A piece of glass: 1

Suspended glass sheets: 1

Stones; 3

Birds:

Bird calls: 1

Birds singing: 1

Clapping: 1

"Mahler" hammer: 2

Washboard: 1

Hand saw: 1

Typewriter: 1

5" salmon reel with ratchet: 1

Gunshot: 1

Pop bottle partly filled with water: 1

Gallon milk jug filled with water: 1

Certain of these "found objects," such as sirens or bird calls, are imitations of sounds heard in real life. Other "found objects," such as a washboard, have experienced use in certain folk music traditions. The variety of these instruments indicates that, aside from instruments with

established playing traditions, practically any sound imaginable is fair game for modern composers.

Multi-Percussion in the Orchestra:

As defined in the previous chapter, the author's judgment regarding whether or not a work required multi-percussion is based on the following factors: 1) an examination of the distribution of percussion parts among a reasonable number of players taking into account recommendations by Raynor Carroll in his repertoire guide and recommendations by Ed Cervenka on his percussion orchestration website; 2) an assessment of whether the individual parts require a specially contrived setup by the composer or the player in order to work; and 3) a determination as to whether the individual part works as a musically integrated whole. Using these criteria, the author determined that more than half of the pieces examined in this study include parts for multiple-percussion (48 pieces).

The author makes the following observations with regard to the use of multiple-percussion parts in the modern orchestral repertoire. First, in pieces that require a large number of percussion instruments, it is more likely that each individual player will need to cover a variety of instruments. Second, the increasing likelihood of composers to write for sets of relatively pitched drums, such as tom-toms or other mixed groups of membranophones, has led to the increased prevalence of multiple-percussion parts. Finally, the use of sets of instruments, such as temple blocks and roto-toms, also increase in the instance of multiple-percussion.

The development of multi-percussion as a solo genre, which initially grew out of the orchestral and chamber tradition, has taken on a life of its own. The ability of a percussionist to play multiple instruments as one musical unit was demonstrated by Stravinsky in his 1918 composition, *L'histoire du Soldat*. Experiments with setups involving multiple drums and other instruments continued in the chamber music genre and the newly created percussion ensemble genre into the mid-20th century. The eroding tonal foundation of classical music throughout the

first half of the 20th century created an ideal environment for the development of multi-percussion. Steve Schick wrote that,

The dissolution of tonal harmony as a means of engineering large-scale musical architecture meant the liberation of percussion from a merely supportive role...Released from its limited role in the orchestra, percussion became fertile ground for the passionate experimentalism of the early twentieth century. Among many other things, composers were fascinated by the 'timbral efficiency' of percussion – by the ability of percussion instruments to produce an enormous number of sounds in the hands of relatively few players. This vitality led logically to the idea of multiple percussion ,where sonic diversity could be multiplied by asking a single player to perform on two or more percussion instruments.¹⁸²

Multiple-percussion, as a solo genre, burst onto the musical scene in 1959 with Stockhausen's composition, *Zyklus*. The earliest pieces for solo multi-percussion evolved from many years of development in chamber and orchestral ensembles. Standing alone, "It follows then that early multiple percussion works were almost exclusively demanding works that were scored for very large groups of instruments and marked by a similarly large set of unique problems in performance. These first pieces included, among others, John Cage's *27'10.554"* (1966) Stockhausen's *Zyklus* (1959) and Charles Wuorinen's composition from 1956, *Janissary Music*."¹⁸³ The early 1960s were pivotal years for the concept of multiple-percussion. If composers prior to that time had any question about what one percussionist could handle, these pieces certainly demonstrated, to an extreme, the possibilities. Even in the current repertoire of multi-percussion, those early pieces are still among the most demanding in terms of quantity of instruments and setup. Such examples surely gave young composers in the orchestral realm free reign to push the limits of their imaginations. Forty-eight of 87 pieces in this study require the use of multiple-percussion. These high numbers reflect the ambitious demands of modern composers on the individual percussion player and the composers' continued desire to use a large variety of timbres in their compositions.

¹⁸² Steven Schick, "Multiple Percussion," *Encyclopedia of Percussion* (New York: Garland Publishing, Inc., 1995), 257.

¹⁸³ *Ibid*, 18.

Percussion Ensemble:

As described in the previous chapter, for the purposes of this study, the percussion ensemble in the orchestra was defined by the following criteria: 1) the percussion section must be playing solo and/or developing the primary musical idea; 2) the music in question must involve three or more players; and 3) there must exist some kind of rhythmical interplay between the instruments of the section. Using these criteria, nearly a quarter of the pieces from this study (21 out of 87 pieces) were determined to have percussion ensembles.

The concept of incorporating a percussion ensemble into a larger orchestral work is one of the most noteworthy developments of the past 50 years. Of the pieces from this study that include percussion ensemble, eight were composed in the 1960s, three in the 1970s, seven in the 1980s, and three in the 1990s. None of the works from 2000 or later included in this study contain percussion ensemble parts. While these results may indicate that using the percussion section as an ensemble within the larger ensemble has become a standard practice, it may also indicate that this trend is, at present, waning in popularity. Another possible indication is that the use of percussion ensemble in orchestral compositions mirrors surges in popularity or changes in the percussion ensemble genre.

The percussion ensemble genre began in the 1930s. After its initial phase of exploration and popularity, experienced what Steve Schick refers to as “The Big Chill” during the years immediately preceding and several years following World War II. Schick wrote,

The series of major percussion ensemble works that began in the early 1930s with *Ionisation* and Roldán's *Ritmicas* concluded in 1943 with Cage's *Amores* and Carlos Chavez's *Toccata para instrumentos de percusión*. Then there was nothing. The end came as suddenly and unexpectedly as did the beginning. Following Cage, Varèse, and Cowell came almost twenty-eight years of near silence from percussion. The next great American work for an ensemble of percussion instruments arrived, in my opinion, in 1971 with Steve Reich's *Drumming*.¹⁸⁴

¹⁸⁴ Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (Rochester, NY: University of Rochester Press, 2006), 65.

If Schick is correct, the initial 1930s experiments with percussion were enough to initially introduce the concept of percussion ensemble to composers. Newer developments that occurred later in the 1950s and 1960s led to an increased presence of percussion ensembles in orchestral ensembles. While entirely new innovations (in the opinion of Steve Schick) in that genre may not have occurred until the 1970s, something else happened that may explain the sudden popularity of percussion ensemble in orchestral works in the 1960s. Between the years of 1949-1956, Paul Price began the first accredited college percussion program at the University of Illinois. Following that example, many other Universities created similar programs throughout the 1950s and 1960, drawing attention to and giving musical legitimacy to this type of composition. By the 1960s, the resurgence in the popularity of this genre is something that would have come to the attention of composers in both the United States and Europe, perhaps giving them the impetus to experiment with such ensembles in their larger compositions.

Many of the composers from this study, whose works in the 1960s included percussion ensembles, were important contributors to the percussion ensemble genre and composed works for percussion ensemble. Strictly speaking, Alberto Ginastera's 1960 work, *Cantata para América Mágica*, is a percussion ensemble work for percussion orchestra and chorus. Ginastera's 1963 *Violin Concerto*, which is also included in this study, contains a percussion ensemble. Alan Hovhaness, whose 1964 work *Floating World Ballade for Orchestra* contains a percussion ensemble, was an early pioneer in the percussion ensemble genre. His 1942 percussion ensemble work, *October Mountain*, represents one of the early important compositions of this genre. William Kraft's 1967 work, *Contextures: Riots-Decades*, and 1982 work, *Interplay*, are both included in this study and both contain percussion ensembles. In addition to being an orchestral composer, Kraft was a percussionist and timpanist with the Los Angeles Philharmonic and later director of the Los Angeles Percussion Ensemble. Additionally, Henry Cowell, one of the early pioneers of the percussion ensemble genre, was among Kraft's early composition teachers.

In addition to the numerous school percussion programs that were being established, the 1970s saw the formation of many professional percussion ensembles like Nexus and Les Percussions de Strasbourg that helped to reinvigorate the percussion ensemble movement by commissioning many new works for the genre. The continued use of percussion ensembles in orchestral ensembles throughout the 1970s and 1980s may be a reflection of the strength and enthusiasm of the percussion ensemble movement during these years. By the 1980s practically all college music degree programs in both the United States and Europe had percussion ensembles, and composers certainly would have been familiar with this genre. The question then is, why are there no examples of percussion ensemble in the orchestral works represented in this study after 1993? It could just be a fluke. Or it could reflect a waning interest by the larger music community in this genre.

Included in the 21 works from this study that contain percussion ensembles are four works which include mallet ensembles. Mallet ensembles occur less frequently than percussion ensembles in orchestral works and also present different challenges for integration in the greater musical structure. The pieces from this study that contain mallet ensembles include: *An Alice Symphony* (1969; revised 1971) by David Del Tredici, *Gorgon* (1984) by Christopher Rouse, *Flow From Me What You Call Time* (1990) by Toru Takemitsu, and *The Rose Lake* (1991-93) by Michael Tippett. Like the works containing percussion ensemble, the timing of the publication of these works coincides with certain developments in the percussion ensemble genre. Mallet ensembles have existed somewhat independently of the percussion ensemble medium for much of the 20th century. "Between the years of 1930 and 1950, marimba "bands" and "orchestras" became increasingly popular, especially the large marimba orchestras formed and conducted by Clair Omar Musser...Ironically, as successful and popular as these marimba orchestras became, their influence on the development of new percussion ensemble literature was minimal since most of the music performed consisted of orchestral arrangements rather

than original compositions.”¹⁸⁵ However, beginning in 1978, the establishment of the University of Oklahoma Percussion Ensemble Commissioning Series began publications of newly composed works for percussion ensemble that primarily feature the mallet instruments. The compositions from this series have been extremely popular in the percussion ensemble genre and were largely responsible for the renewed interest in works for “percussion orchestra” and mallet ensembles in the 1980s and 1990s. The renewed interest in mallet ensembles during this time may account for the presence of mallet ensembles in the orchestral works included in this study. While David Del Tredici’s *An Alice Symphony* (1969; revised 1971) predates these developments, the other three pieces from this study that include mallet ensembles were composed in the 1980s and the early 1990s.

It seems that both percussion ensembles and mallet ensembles in the context of a larger orchestral work are verifiable trends of the past half century based on the pieces included in this study. However, the lack of either percussion or mallet ensembles in any of the pieces from this study after 1993 is a remarkable absence. The coming years will tell if the trend of percussion ensemble in orchestral ensemble is experiencing just a lull in popularity or a definite decline in popularity.

¹⁸⁵ Lance M. Drege, The University of Oklahoma Percussion Ensemble Commissioning Series and Percussion Press, 1978-1999 (University of Oklahoma, 2000), 2-3.

Chapter VI

SUMMARY AND CONCLUSION

Summary:

This study examined the uses of percussion in the orchestra, and the attitudes of composers regarding the uses of percussion in the orchestra, between 1960 and 2009. By examining scores for 87 compositions written for orchestra between 1960 and 2009, the author drew distinctions between current uses and attitudes regarding orchestral percussion and historical and traditional uses and attitudes regarding orchestral percussion. The author also tried to predict what future changes might occur with regard to such uses and attitudes based upon the changes which have occurred over the past 50 years.

Chapters 1 through 3 of this study provided necessary historical background information and a historical perspective regarding orchestral percussion, particularly during the 19th century and the first 60 years of the 20th century. These chapters looked at how orchestral percussion developed during those years.

Chapter 1 explained how the role of percussion changed from the early 19th century to the mid-20th century from occasional accompaniment to an independent and indispensable section of the orchestra. The author traced the development of percussion from an often neglected, and sometimes scorned, section of the orchestra to an accepted and respected part of the orchestra. In measuring that progress, the author reviewed compositional trends, attitudes towards percussion and timpani in scholarship and composition, stylistic developments regarding the percussion section, the recognition of percussion's potential, the upsurge in expectations regarding percussion, and the increasingly dominant role of percussion instruments in the orchestra.

Chapter 2 focused on the reasons why percussion instruments gained greater acceptance and experienced greater use in the orchestra during the 19th century and the first 60 years of the 20th century. The author reviewed technical and mechanical advances in the production of pitched instruments - particularly the timpani, advances in percussion literature with an emphasis on the development of extended techniques, numerous composers' contributions to the development of percussion, the assimilation of mallet instruments into the orchestra, and the development and popularity of method books (particularly during the first half of the 20th century.)

Chapter 3 reviewed the changes in opinions and attitudes regarding percussion which occurred during the 19th century and the first half of the 20th century. The author explained how academic studies regarding percussion became more prevalent and how orchestration texts began to view percussion instruments as more musical than previously believed. The author also documented changes in composers' attitudes regarding the imagined uses of percussion instruments, the diminishment of beliefs in pre-assumed roles for percussion instruments, the improved reputation of percussionists as musicians, the increasing prevalence of quality percussion programs at conservatories and universities, and the role of prominent composers who became strong advocates of an increased use of percussion in orchestral pieces.

Chapters 4 and 5 quantified exactly how percussion was used in the orchestral context between 1960 and the present time. These chapters demonstrated statistically what the author believes to be the current role of percussion in today's orchestras.

Chapter 4 outlined how the author structured her case studies, explained the format of those case studies and provided necessary definitions of terms. The chapter identified a number of composers who scored extensively for orchestral percussion between 1960 and 2009. The author explained her criteria for each composition examined, how the study quantified the current extent to which utilization is made of the standard percussion battery, the standard mallet battery, timpani, auxiliary/effect instruments, the standard Latin battery, other

ethnic instruments, found instruments, multi-percussion, percussion ensembles, solo percussion passages and unusual or extended techniques. The author created new categories of instruments and techniques especially for this study to reflect to the current variety of instruments available to the percussion section. Gardner Read wrote in his *Style and Orchestration*,

Until the present era it was sufficient for standard instrumentation texts (Berlioz-Strauss, Rimsky-Korsakov, Prout, Widor, Forsyth, and others) to group the percussion instruments into two broad categories: those of definite pitch (such as timpani, glockenspiel, bells), and those of indefinite pitch (bass drum, gong, tambourine, and so on). In the light of contemporary usage, however, these simple classifications no longer suffice. Indeed, they are both misleading and inaccurate, for each pitched instrument has its own unique timbre, and even unpitched instruments can give an aural illusion of relative pitch in certain contexts.¹⁸⁶

The new categories reflect the history of the instruments and shared origins or playing techniques.

Chapter 5 outlined the author's conclusions regarding the current state of the modern percussion section. Specifically, the chapter discussed the current consensus of composers regarding the numbers of percussionists to be used for typical compositions, the dividing of percussion parts, writing for unpitched instruments, multi-percussion setups, specific requests for instrumentation, experimentations with sound, and directions regarding unconventional activities. All discoveries and conclusions were summarized by broader category (as defined in Chapter 4) and individual instrument.

Among the instruments of the *Standard Percussion Battery* it was found that instruments from this category remain collectively the most commonly used of all percussion instruments in orchestral settings. Historical research indicated that as of 1960, many of these traditional instruments had already lost their traditional associations, such as the association of snare drum with military-style rhythmic parts or the association of castanets with a Spanish or ethnic flavor. Findings from this study further indicated that instruments from the category of *Standard*

¹⁸⁶ Gardner Read, *Style and Orchestration* (New York: Schirmer Books, 1979), 193.

Percussion Battery have important roles beyond rhythmic support in orchestral settings. It was also discovered that composers in recent years have commonly used extended techniques for instruments from the *Standard Percussion Battery* which include unusual stick requests and requests to play on specific areas of the instruments, such as the center or the edge. Finally, the author discovered a number of trends involving the instruments from this category that seem to be accelerating in popularity in recent years. Some of these trends include the presence of a pedal bass drum, expansion of the cymbal category, and growing interest in the tom-toms.

The instruments of the *Standard Mallet Battery* were of particular interest in this study. As of 1960, many of those instruments, namely the vibraphone and marimba, were still relative newcomers to the orchestra ensemble. Additionally, 1960 marked the very beginning of the development of a sophisticated solo repertoire and consequent increase in general technical proficiency in playing these instruments across the percussion world. The examination of pieces included in this study showed that instruments from the category of *Standard Mallet Battery* have become second in popularity to instruments of the *Standard Percussion Battery*. Of particular importance was the discovery that vibraphones were the most popular instrument from the category of *Standard Mallet Battery*. In addition to the upsurge in interest by composers for including mallet instruments in orchestral percussion sections, specific compositional techniques were also noted, including the widespread use of four-mallet technique and increasing difficulty of mallet parts of today compared to mallet parts of the past. A number of extended techniques in use among these instruments were also identified, most notably frequent use of the glissando, bowing the bars of mallet instruments, and unusual stick requests.

The *Effect Instruments*, many of which have been in common use for more than a century, also experienced changes over the past several years. Findings from this study indicated that these instruments are equal in popularity to the timpani, which show that there has not been any waning interest for the variety of instruments from this category over time.

What was notable, however, was the discovery that woodblocks and temple blocks are now the most popular instruments from the category of *Effect Instruments*. This finding indicates that a large variety of wood sounds are popular choices for composers and ties into the finding that composers of today are interested in writing for groups of percussion instruments in a multi-percussion fashion. Also identified from the review of scores were several new members of this category, most notably the Mark Tree, wind chimes of varying materials including bamboo, shell, and glass, and the Flexatone.

The place of the timpani in orchestral ensembles has seen some of the greatest changes throughout history. In the fourteenth century timpani were a symbol of wealth and aristocracy.¹⁸⁷ Early timpanists were equally as revered in status as the instrument itself. Secrets of timpani playing and technique were closely guarded by an Imperial Guild of Trumpeters and Kettledrummers, and admission to the guild came with privileges and responsibilities.¹⁸⁸ However, the timpani diminished in prestige over the years and were often belittled for their technical limitations and poor quality in the 19th century. However, the technical advances of the drums in the later 19th and early 20th century and the commonplace acceptance of two more drums in the orchestra led to a great number of changes by 1960. These changes are still taking place. In the time period examined in this study it was found that timpani were often used in important and solo roles and that timpani parts have increased in difficulty in recent years. A number of commonly used extended techniques for the timpani were also identified. Techniques included demand for extended ranges of the drums, glissando, variations on playing areas, (including the center, edge, rim, and the shell of the drum), requests for playing the drums coperti or muffled, hitting one drum with two sticks at the same time, requests for two or three notes chords, and using the timpani as a secondary sound-enhancing

¹⁸⁷ Blades wrote, "Nakers first appeared in England in the early fourteenth century, and soon became the symbol of aristocracy; used in musical entertainment, as an encouragement in the tournament, and to increase the sound and turmoil of battle." (Blades, *Percussion Instruments and Their History*, 224).

¹⁸⁸ *Ibid*, 228.

device (specifically for cymbals, triangles, crotales, and Japanese Temple bowls.) It seems that after their fall from royalty and prestige, the timpani are once again claiming their place of dominance in the music world.

The category of *Standard Latin Battery* instruments was identified by the author as a newer addition to the orchestra that had an established tradition by 1960 of adding ethnic or Latin flavor to the music. Changes already taking place regarding these instruments in the 1950s pointed to the possibility that those instruments, like the instruments of the *Effect Instruments* years before, were quickly becoming divorced from their ethnic origins. The findings from this research showed that instruments from the category of *Standard Latin Battery* have become very popular and confirmed what these earlier signs indicated which was that the style of composition in recent years regarding the instruments from the *Standard Latin Battery* no longer reflects Latin American origins. It was also concluded that the most popular instruments from the category of *Standard Latin Battery* from pieces in this study were the bongos, followed by the maracas, claves, and guiros.

Further discoveries about the percussion instruments their uses in the orchestral ensemble showed that other ethnic or unusual instruments as well as found objects are consistently prevalent in orchestral compositions. Often used by composers of this study were gongs, bells, and drums from a variety of cultures. Newer additions to the orchestral ensemble in the past half century included Roto-toms, Boo-bams, and steel drums. And certain instruments whose future seemed uncertain as of 1960, such as the rute, have experienced continued use in recent years. In addition to new instruments available for color and timbre, composers have also continued to think outside the box. Requests for “found objects” has also increased in recent years.

The concept of multiple percussion setups in orchestral ensembles was defined in chapter 4 and identified by the author as a potential avenue for development. Not surprisingly,

considering the variety of instruments in common use today, it was found that the use of multi-percussion has increased in recent years.

A final trend that was identified through historical precedent and identified as a potential area of growth and experimentation was the use of percussion ensembles in the orchestra. The results of the research conducted for this study showed that the use of percussion ensemble has become common since 1960. However, it was also noted that the use of percussion ensemble in orchestra may be decreasing in recent years. A reason for this was not identified. However, it was discovered that the occurrence of mallet ensembles in orchestral ensembles has increased since 1960.

In the final analysis, this study's examination of percussion parts from a representative list of composers that scored extensively for percussion between the years of 1960 -2009 demonstrated conclusively the increased importance of the percussion section to the orchestra, the greatly expanded use of orchestral percussion instrumentation (new or unusual instruments or the lack of standard instrumentation), and the increased use of new or unusual playing techniques, multi-percussion in the orchestra, detail of composer instruction, soloistic moments, and percussion ensemble in the orchestra. The study also demonstrated that these trends are likely to continue into the future.

Recommendations:

Based on the findings of this study, the following recommendations for further study or action are offered by the author:

1. The continued collaboration and discussion between performers and composers must be encouraged. Among topics of particular importance that should be addressed between performers and composers are issues of stick and mallet instructions. Performers and composers should work together to find appropriate sticks that fit aural intention but will not be damaging to the instruments. In light of all the possibilities

available to composers today, ongoing effort must also be made to bring awareness of not only the possibilities of the various percussion instruments, but their limitations as well.

2. The continued and escalating collaboration of composers and publishers with performers in instrument selection must be encouraged, especially for pieces that require a variety of unusual sounds or found instruments.
3. The identification of percussion ensemble as an orchestral technique warrants the recommendation that the history and techniques of percussion ensemble composition be included in composer's exposure and education concerning percussion in general.
4. Based on the findings of this study, the future of percussion ensemble as a continuing orchestral trend remains uncertain. A more detailed examination of this particular compositional technique and how it has responded or reacted to the larger percussion ensemble genre may clarify the direction of percussion ensemble in the orchestra.

Conclusion:

While it is clear that many changes took place in the orchestral percussion section during the 20th century, there are many theories as to why. Why did percussion take on such an important role in 20th century music? Joan Peyser theorized that, "This novel use of percussion in so many twentieth-century scores simply emphasizes a fundamental fact: to compensate for the breakdown of the diatonic harmonic system ('common practice' tonality), composers liberated noise and color, and sound itself, as a major element – perhaps *the* major element – of musical discourse."¹⁸⁹ The preface written by Yehudi Menuhin to James Holland's book *Percussion* took a similar view as that of Peyser. Menuhin wrote, "It is interesting to note the return of percussion with the growth of the percussion section in orchestras. In a sense it is a regression from the Gregorian chant, the melodic inflections at the service of words, from the

¹⁸⁹ Joan Peyser, *The Orchestra: Origins and Transformations* (New York: Scribner, 1986), 585.

euphonious harmony which dominated so much of our classical European music and in which rhythm seemed to take a back seat to harmony. Today, harmony could be said to have become partly noise, with rhythm taking over as the binding factor."¹⁹⁰ A look at the bigger picture reveals that percussion is the most obvious reflection and reaction to the changing orchestral model. And while percussion is used quite differently by a number of composers, the variety of those uses reflect the infinite possibilities available to the composer willing to engage it.

¹⁹⁰ James Holland, *Percussion* (London: Macdonald and Jane's, 1978), Preface xi.

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Appendix A

COMPOSITION TEMPLATES

<p>Piece: The Chairman Dances: Foxtrot for Orchestra Composer: John Adams (b. 1947) Year: 1985</p>
<p>Number of Players Called For: 3-4 Percussionists, 1 Timpanist 3 players specified in percussion parts, but often performed with 4 Number of Individual Instruments Required (Timpani Considered 1 Instrument): 27 (Requires some sharing) Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: Snare Drum, pedal bass drum Cymbals: Hi-hats, suspended, crash, sizzle Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Pedal bass drum required Brushes on snare drum Dampen snare drum with a newspaper Indication to use wire brushes on sizzle cymbal Indication to scrape cymbal with triangle beater • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Vibraphone bowing • <i>4-Mallet Technique?</i> Yes Vibraphone and xylophone • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes Xylophone part is rhythmically difficult and technically difficult • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Bell tree Woodblocks Sandpaper blocks Castanets</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No

<ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? E-G (minor 10th) •Solo Passages? No
<p>Standard Latin Battery? Yes Claves</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> •Many of the effects/instruments are a crossover from the dance band, such as the drumset, sand blocks and woodblocks. This is appropriate as the piece is subtitled “Foxtrot for Orchestra” •Percussion is generally used in a lot of doublings throughout the piece as well as the “rhythm section” •The end is a solo for percussion ensemble. The effect is meant to resemble a gramophone slowing down and stopping

<p>Piece: Naïve and Sentimental Music Composer: John Adams (b. 1947) Year: 1998</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 42 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended, sizzle cymbal Tam tams Triangles (some triangles specified "Ranch" triangles) •<i>Unusual or Extended Techniques?</i> Yes Indication to play suspended cymbal with metal triangle beater Indication to play sizzle cymbal with metal mallets •<i>Solo Passages?</i> No</p>
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales •<i>Unusual or Extended Technique?</i> Yes Indication to bow vibraphone Indication to play xylophone with soft mallets Indication to glockenspiel with soft mallets, and with metal mallets Indication to play crotales with metal mallets Indication to bow crotales •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> No</p>
<p>Effect Instruments? Yes Almglocken Anvil Sleighbells •<i>Unusual or Extended Techniques?</i> Yes Indication to play almglocken with hard mallets •<i>Solo Passages?</i> No</p>
<p>Timpani •<i>Unusual or Extended Techniques?</i> No</p>

<ul style="list-style-type: none"> •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No Generally tuning is moderate to minimal, except for a chromatic section in the 3rd mvt. •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> E-E (8th) •<i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes Shaker</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes Small Chinese gongs Small high pitched bells Japanese temple bowls Gongs (no pitches specified)</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Asyla Composer: Thomas Adès (b. 1971) Year: 1997</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Timpanist must also play percussion Number of Individual Instruments Required (Timpani Considered 1 Instrument): 57 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, kick bass drum, side drum Cymbals: Chinese cymbal, hi-hat, suspended, small choke cymbal, crash, sizzle Tam tam</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes <ul style="list-style-type: none"> Indication to hit bass drum on shell Indication to strike side drum sticks together Indication to play snare drum with wire brushes Indication to play snare drum with snares off Indication to play suspended cymbal on dome Indication to bow suspended cymbal Indication to play on hi-hats near dome Indication to play hi-hats with wire brushes Indication to vertically scrape Chinese cymbal and small suspended choke cymbal Indication to bow Chinese cymbal Indication to play crash cymbals in such a way that one plate is rotated against the others Indication to rub sand paper around the rim of the tam tam Indication to stroke tam tam with handle of beater and to scrape with handle of beater, and to hit with vibraphone beater Indication to scrape tam tam with metal stick •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Glockenspiel Chimes Crotales Bell plates</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes <ul style="list-style-type: none"> Indication to play glockenspiel with rubber beater Indication to play chimes with triangle beater Indication to bow crotale Indication to hit crotale with rubber mallet Indication to play crotales with thick end of snare drum stick •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A

<ul style="list-style-type: none"> •Solo Passages? No
<p>Effect Instruments? Yes</p> <p>Tuned cowbells Geophone Ratchet Sandpaper blocks</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indication to play cowbells with soft beaters, and with reverse side of sticks <p>•Solo Passages? Yes</p>
<p>Timpani</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indications to play on shell of drum with mallet heads and shafts Indications to play dead center Indication to play with wooden sticks Indication to dead stroke •Are More Than 4 Drums Required? Yes Saariaho recommends 5-6 timpani; Player 5 also uses a timpano •Does it Require Extensive Tuning? Yes •Would Tuning Gauges Be Necessary? Yes •What is the Range of Tunings Required Throughout the Piece? Db-D (augmented 15th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos (or small finger drums)</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? No <p>•Solo Passages? No</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Rototoms Water gongs Tuned gongs Large gong</p>
<p>“Found” Instruments? Yes</p> <p>Tins Washboard Bag full of knives and forks (struck flat)</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • The tuned cowbells really have the melodic solos in this piece

<p>Piece: Violin Concerto: Concentric Paths Composer: Thomas Adès (b. 1971) Year: 2005</p>
<p>Number of Players Called For: 2 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 23 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drums, tenor drum, side drum, military drums Tom toms Cymbals: crash, suspended Tam toms</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with hard sticks Rim shot on side drum Indication to damp the low drums and military drums Indication to play the military drums with snares off (they are being used as just different sized drums in a multi-setup) Indication to use a wooden stick on the edge of a suspended cymbal Indication to play suspended cymbal with vibraphone stick, and with a timpani stick, and with snare drum sticks, and with a triangle beater scraped Indication to hit tam tam with triangle beater • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? No</p>
<p>Effect Instruments? Yes Wood drum (Adès says either a low tom-tom with balsa wood fitted exactly over the head or a large log drum with a single pitch) Woodblock Cowbell Metal block or large anvil</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play wood drum with a soft beater • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to hit 2 sticks on one drum simultaneously Glissando Holding 3 sticks at one time and playing 3 note chords Indication to play drums dead center Drums coperti Indication to play timpani with hard sticks • <i>Are More Than 4 Drums Required?</i> No Composer says minimum of 4 drums required, ideally 5 to be used • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes

<ul style="list-style-type: none"> •What is the Range of Tunings Required Throughout the Piece? Bb (below low C)-A (14th) •Solo Passages? No
<p>Standard Latin Battery? Yes</p> <p>Bongo Metal guiro Wood guiro</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indication to play bongo with fingers •Solo Passages? No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? Yes</p> <p>Small can (metal) or square tin – not sonorous (two instruments <i>ad lib.</i>) Metal block or large anvil</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • There are some options involved in instrumentation; for example, the large anvil or block is one instrument, but this could fall either into the category of “found object” or “effect instrument.”

Piece: Andromache's Farewell Composer: Samuel Barber (1910-1981) Year: 1962
Number of Players Called For: 3-4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 12 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: snare drum, tenor drum, bass drum Cymbals Tam Tam Tambourine <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Tenor drum rolls on handkerchief Tambourine thumb rolls •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Xylophone Antique cymbal <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> Yes
Effect Instruments? Yes Anvil Woodblocks Whip <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No •<i>What is the Range of Tunings Required Throughout the Piece?</i> E-E (1 octave) •<i>Solo Passages?</i> No
Standard Latin Battery? No

Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none">• Some stick preferences specified by composer

<p>Piece: Third Essay for Orchestra Composer: Samuel Barber (1910-1981) Year: 1978</p>
<p>Number of Players Called For: 5-6 Percussionists, 2 Timpanists Number of Individual Instruments Required (Timpani Considered 1 Instrument): 17 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: snare drums, bass drum Cymbals: suspended cymbal Tam tams</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum with snares off Indication to play cymbal with hard stick • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Xylophone Glockenspiel Antique cymbals</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to play xylophone with soft mallets • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblocks Whip Metal sheet (thunder sheet)</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> Yes 2 timpanists are required, Timpani I requires 6 drums (including a piccolo) and timpani II requires 5 drums • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th)

Timpani I: C-C (15 th) Timpani II: C-G# (augmented 12 th) •Solo Passages? Yes
Standard Latin Battery? Yes Bongos •Unusual or Extended Techniques? No •Solo Passages? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes

Piece: Sinfonia Composer: Luciano Berio (1925-2003) Year: 1968
Number of Players Called For: 3-4 Percussionists Berio recommends 3 percussionists with percussion 1 playing some timpani, Raynor Carroll recommends 3 percussionists and 1 timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 32 Setup Diagram Included? Yes Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: snare drum, bass drum Cymbals: suspended, sizzle Tam tam Tambourine Triangles <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum with brushes and to play on the center and side Rim shot on snare drum Indication to play cymbal with wooden stick and with wooden stick on center Indication to play tam tam with metal stick, with a wooden stick, and indication to scrape tam tam with metal sticks •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimba <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Glissando on marimba and vibraphone •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes Some thoughtful pedaling and possible stick dampening might be required in the second movement •<i>Solo Passages?</i> No
Effect Instruments? Yes Castanets Sleigh bells/Grelots Whip Woodblocks <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes

<p>Indication to play with brushes on timpani</p> <ul style="list-style-type: none"> •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> Yes •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> F-F (8th) •<i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>Bongos</p> <p>Guiros</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes <p>Indication to play bongos with brushes in one hand and stick in the other hand</p> <p>Indication to play bongos with wooden stick flat on head</p> <p>Indication to play bongos with fingers</p> <ul style="list-style-type: none"> •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Chichester Psalms Composer: Leonard Bernstein (1918-1990) Year: 1965</p>
<p>Number of Players Called For: 7 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 20 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: snare drum, bass drum Cymbals: crash, suspended Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication for bass drum to be played with snare drum sticks Rim shot on snare drum • <i>Solo Passages?</i> Yes Solo bass drum notes at the end of the 2nd movement
<p>Standard Mallet Battery? Yes Xylophone Glockenspiel Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissandos • <i>4-Mallet Technique?</i> No There is a 3 note chord in the glockenspiel part but it calls for 2 players • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Woodblock Temple blocks Whip</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No The first movement requires moderate tuning • <i>Would Tuning Gauges Be Necessary?</i> No

<p>The tempo is slow enough that tuning could be achieved without tuning gauges</p> <ul style="list-style-type: none"> • <i>What is the Range of Tunings Required Throughout the Piece?</i> E-A (Major 11th) • <i>Solo Passages?</i> Yes Solo timpani notes at the end of the 2nd movement
<p>Standard Latin Battery? Yes</p> <p>Raspador (guiro) Bongos</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Symphony No. 3, "Kaddish" Composer: Leonard Bernstein (1918-1990) Year: 1961-63</p>
<p>Number of Players Called For: 8 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 32 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, field drum, tenor drum Cymbals: crash, suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to hit snare drum on the rim, with wire brushes, rim shots, and with snares off Indication to hit cymbal with snare drum stick, with wire brushes, with triangle beater, and on dome • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Chimes Antique cymbals</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to hit chime with a steel hammer • <i>4-Mallet Technique?</i> Yes There are some 3-note chords, however sometimes Bernstein indicates that those can be split between 2 players – although it is likely that one player would perform these chords using 4 mallet technique with today's performance practice • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Whip Woodblock Ratchet Finger cymbals Temple blocks Sandpaper blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p>

<ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Timpani plays improvised notes during one section with notes within the range of E-A (11th) with wide skips Indications for wood sticks on timpani Indication to beat the timpani with a maraca •<i>Are More Than 4 Drums Required?</i> Yes Bernstein indicates the necessity of 5 timpani in the score •<i>Does it Require Extensive Tuning?</i> Yes •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-A (augmented 11th) •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Maracas Bongos Raspador (guiro)</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indications to tap maracas with fingers instead of shaking •<i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Israeli hand-drum</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • General indication for sticks (i.e. “hard sticks”)

Piece: Exody "23:59:59" Composer: Harrison Birtwistle (b. 1934) Year: 1997
Number of Players Called For: 5 Percussionists No Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 68 Setup Diagram Included? No Multi-Percussion Required? Yes
Standard Percussion Battery? Yes Drums: bass drum Tom toms and Chinese drum Cymbals: suspended, hi-hat Tam tam Tambourine Triangle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Hi-hat cymbals required Indication to bow suspended cymbals Indication to scrape tam tam slowly with triangle beater Tambourine to be mounted and played muted with wooden sticks •<i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes
Effect Instruments? Yes Woodblocks Slapsticks Bell tree <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to scrape bell tree with triangle beater Indication to play woodblock with hard stick •<i>Solo Passages?</i> Yes
Timpani No
Standard Latin Battery? Yes Guiros

<p>Bongos Claves</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bongo with side drum stick, with medium stick, and with fingers • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes 2 Large nipple gong (at least 30 inches)</p>
<p>“Found” Instruments? Yes 5” salmon reel (with ratchet)</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: The Triumph of Time Composer: Harrison Birtwistle (b. 1934) Year: 1972</p>
<p>Number of Players Called For: 5 Percussionists No timpanist, players 2, 3, and 4 use timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 66 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, tenor drum, drums (snare drums without snares) Cymbals: suspended Tam tams</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Snare drums without snares • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Indication to play vibraphone with plexiglass or extremely hard stick in order to achieve desired overtone Vibraphones must be amplified • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Cowbells Temple blocks Ratchet</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes

<p>•<i>What is the Range of Tunings Required Throughout the Piece?</i> Total F-A (10th) Timpano I: C-A (6th) Timpano II: F-C# (augmented 5th) Timpani III: B-E (4th)</p> <p>•<i>Solo Passages?</i> No</p>
<p>Standard Latin Battery? Yes Bongos Timbales Congas</p> <p>•<i>Unusual or Extended Techniques?</i> No</p> <p>•<i>Solo Passages?</i> No</p>
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Birtwistle give the following notes about the percussion instruments: <ol style="list-style-type: none"> 1) Vibraphones with amplification. 2) The bass drums should sound three different pitches, all as low as possible. 3) Crotales – one (or two) chromatic octaves. 4) 4 tenor drums as large as possible and identical. 5) 6 suspended cymbals – all must be of different pitches as low as possible. 6 drums without snares, all of different pitches, the lowest must be a fairly large vertical bass-drum higher in pitch than bass-drum 3 of percussion player 3. 6) 4 bongos, all of different pitches. The lowest must be higher than the highest timbale. 4 timbales, all of different pitches. The lowest must be higher than drum no. 6 of player 5. Conga drum, also different pitches. Ratchet – small metal or wooden one with tongue set under very low tension. If unavailable use very small one inside a felt-lined wooden box. 7) 9 tam-tams – seven pitches as low as possible [Birtwistle then goes on to give an arrangement of the tam tams].

<p>Piece: Notations</p> <p>Composer: Pierre Boulez (b. 1925)</p> <p>Year: 1978</p>
<p>Number of Players Called For: 8 Percussionists, 1 Timpanist</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 105</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: snare drum, bass drum</p> <p>Tom toms</p> <p>Cymbals: suspended cymbal , Chinese cymbal, sizzle</p> <p>Tam tam</p> <p>Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes <ul style="list-style-type: none"> Indication to play snare drum without snares Indication to play snare drum on the rim Indication to play tom toms with xylophone mallets, timpani mallets, and snare drum mallets Indication to play various cymbals with snare drum stick, and triangle beater Indications to play at edge and center of suspended cymbal The gong is to be laid flat on a cloth or on foam rubber, fairly muffled Indication to double gliss on the surface of a tam tam with mallets that are hard enough Indication to play gong with triangles, triangle beater, and to play on the edge •<i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Xylophone</p> <p>Glockenspiel</p> <p>Marimba</p> <p>Chimes</p> <p>Crotales</p> <p>Bell plates</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes <ul style="list-style-type: none"> Glissando on xylo, vibes, glock, crotales, and marimba Indication to play vibraphone with glockenspiel mallets Indication to play xylophone with very soft mallets A pedal glockenspiel is required Indication to play glockenspiel and crotales with very soft rubber mallets An extended range of chimes going down to an F is needed •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p>

<p>Anvils Cowbells Woodblocks Bell tree Temple blocks Log drum Almglocken Glass wind chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play woodblocks with medium-hard rubber xylophone mallets • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Indication to play with wooden sticks • <i>Are More Than 4 Drums Required?</i> Yes 5 drums are required • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-B (augmented 12th) • <i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>Claves Timbales Bongos Maracas Congas</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bongos with snare drum sticks, and timpani mallets • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>High and medium mokubios (Japanese woodblocks; very high woodblocks) High and medium boo-bams Cymbalettes (jingles on a stick) Hand drum 2 Tablas</p>
<p>“Found” Instruments? Yes</p> <p>Metal blocks</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Ice Field</p> <p>Composer: Henry Brant (1913-2008)</p> <p>Year: 2001</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 22</p> <p>Setup Diagram Included? No</p> <p>Although Brant does describe a setup. He says the timpani must be on stage, the xylophone and glockenspiel must be in a top corner of a balcony, the jazz drummer must be in the first balcony (or series of adjacent boxes), and the gongs, bass drums, and bass steel drums must be behind the audience at the downstairs level.</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drums, pedal bass drum, snare drums</p> <p>Tom toms</p> <p>Cymbals: hi-hats, suspended</p> <p>Gongs (tam tams)</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes This piece requires a drumset player Improvisation required on drumset both in time and without a regular beat Indication for rim shot on snare drum Indication to play suspended cymbal choked, and to play with snare drum sticks The gongs must be placed on the bass drums <ul style="list-style-type: none"> •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Xylophone</p> <p>Glockenspiel</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p> <p>Cowbell</p> <p>Chinese block</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play timpani with wood mallets Indication to play drums slightly muted •<i>Are More Than 4 Drums Required?</i> Yes Requires 5 drums

<ul style="list-style-type: none"> •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? F-G# (augmented 9th) •Solo Passages? Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Bass steel drums
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: War Requiem</p> <p>Composer: Benjamin Britten (1913-1976)</p> <p>Year: 1961</p>
<p>Number of Players Called For: 6 Percussionists, 1-2 Timpanist</p> <p>Britten calls for 1 timpanist and 4 percussionists in the orchestra. A chamber orchestra plays along with the orchestra. Britten does not indicate the number of players needed for the chamber orchestra, only instruments required. The Carroll book recommends that percussionists 5 and 6 who also play in the orchestra cover the chamber parts which include timpani. Cervenka recommends that a 2nd timpanist cover the chamber orchestra timpani as well as some percussion parts with assistance from other percussionists.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 18</p> <p>Requires some sharing</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? No</p> <p>If one player were to play all the percussion parts for the chamber orchestra it would require conceiving of a multi setup in order to achieve that, but it doesn't seem to be Britten's intention that the part be "multi percussion." He writes the parts out as a normal percussion section part.</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, side drum, tenor drum</p> <p>Cymbals: crash, suspended</p> <p>Tam tam</p> <p>Tambourine</p> <p>Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with snare drum sticks Indications to play snare drum without snares and with felt sticks Indications to play cymbal with snare drum sticks Indication to play gong with a hard stick <ul style="list-style-type: none"> •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Glockenspiel</p> <p>Chimes</p> <p>Antique cymbals</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play bell (chimes) with metal beaters <ul style="list-style-type: none"> •<i>4-Mallet Technique?</i> No <ul style="list-style-type: none"> •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No <ul style="list-style-type: none"> •<i>Difficult Pedaling Technique Involved?</i> No <ul style="list-style-type: none"> •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p> <p>Whip</p>

<p>Chinese block (woodblock) Castanets</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes In the “Libera Me” there are timpani notes written with two notes heads on one stem and the indication to play “heavy,” presumably indicating that Britten wants the timpanist to hit the drum with both sticks at the same time Indications to play timpani with a snare drum stick Indication to play a figure on timpani and repeat <i>ad lib.</i> with no connection to the tempo • <i>Are More Than 4 Drums Required?</i> Yes 2 full sets of 4 drums are required – 1 for the orchestra and 1 for the chamber orchestra • <i>Does it Require Extensive Tuning?</i> No Moderate tuning required for both orchestra and chamber orchestra • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> Orchestra: D-F (minor 10th) Chamber Orchestra: F-F# (augmented 8th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? No</p>
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes A small percussion ensemble begins the “Libera Me.” It is actually mostly just solos between the bass drum and tenor drum, but since a suspended cymbal joins in at the end it can count as a percussion ensemble.</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Britten gives stick recommendations for various instruments (i.e. “hard stick” or “soft stick”) • Cervenka says on his website that the 2 bell pitches are usually played an octave lower than written

<p>Piece: Concerto for Orchestra Composer: Elliot Carter (b. 1908) Year: 1969</p>
<p>Number of Players Called For: 7 Percussionists, 1 Timpanist Raynor Carroll and Carter both recommend that the timpanist also play tenor drum although Cervenka has Percussion 1 playing tenor drum. Carter writes, "Two different extractions of the percussion parts are available for performance: one for six players, including timpani, as written in the score; and one for eight players (also including timpani) as described in the following seating diagram...If the performers of the latter have enough space to move around, or if additional players are available, the percussion instruments associated with each instrumental group can be played as near that group as possible."</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 36 Setup Diagram Included? Yes Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, side drum, tenor drum Cymbals: suspended, crash Tam tam Tambourine Triangles</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum with timpani sticks Indication for rim shot on snare drum Indication to play tenor drum with timpani stick Indication to play suspended cymbal with snare drum sticks and to scrape with triangle beater Indication to scrape tam tam with triangle beater and to strike on edge with triangle beater Indication to play tambourine with thumb (thumb roll) •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Cowbells Anvil</p>

<p>Ratchets Castanets Woodblocks Whip</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications to play woodblocks with wound vibraphone mallets and snare drum sticks Indication to play temple blocks with snare drum sticks Indication to strike anvil with triangle beater • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum required • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C#-Cb (diminished 15th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Maracas</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications to vary speed to scrape on guiro • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p> <p>This piece opens with a solo percussion introduction, but the percussion section solo is creating atmosphere, rather than continuing a rhythmic interplay or developing themes.</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Carter writes that, “In place of the marimba and xylophone, one instrument having the entire range of both may be substituted.” • Carter divides the percussion into metal, wood, and skin

<p>Piece: As Quiet As Composer: Michael Colgrass (b. 1932) Year: 1965-1966</p>
<p>Number of Players Called For: 4 players total (Timpanist also plays some percussion) Number of Individual Instruments Required (Timpani Considered 1 Instrument): 24 (requires some sharing) Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, tenor drum Cymbals: suspended, sizzle Tam tam Triangles</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use brushes and fingers on different sides of bass drum Indication to use brushes on snare drum Indication to use brushes on tenor drum (tenor drum used in relative melodic conjunction with timbales) Indication use to use brushes on cymbal • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Vibes and glockenspiel played with triangle beaters • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Woodblocks Glass wind chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Brushes on woodblocks • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Timpani heads and shells to be played with brushes Muffling is also required • <i>Are More Than 4 Drums Required?</i> No

<ul style="list-style-type: none"> •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? E-E (8th) •Solo Passages? No
<p>Standard Latin Battery? Yes Timbales</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Timbales to be played with fingers •Solo Passages? No
<p>Other Ethnic or Unusual Instruments? Yes A variety of little bells including sleigh bells, dog collar bells, Christmas bells, Japanese bells, and Elephant bells Also requires an Indian Drum (can be substituted with a deep tom-tom)</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Mallets are specified for almost all instruments • Vibraphone vibrato speed is specified • High level of instruction for all instruments, including when to choke cymbals • Colgrass makes frequent use of achieving “melodic” lines with unpitched instruments of different sizes used in conjunction with one another

Piece: Gazebo Dances Composer: John Corigliano (b. 1938) Year: 1980-81
Number of Players Called For: 3-5 Percussionists, 1 Timpanist Corigliano recommends 3 percussionists in his score, however both Carroll and Cervenka recommend 5 percussionists Number of Individual Instruments Required (Timpani Considered 1 Instrument): 10 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals: crash, suspended Tambourine Triangle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Snare drum with no snares Rim shot on snare drum •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Xylophone <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Glissando on xylophone •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> No
Effect Instruments? No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> E-G (minor 10th) •<i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Handbell
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Symphony No. 1 Composer: John Corigliano (b. 1938) Year: 1989</p>
<p>Number of Players Called For: 5-7 Percussionists, 2 Timpanists Corigliano recommends 5-6 percussionists, Carroll recommends 6, and Cervenka recommends 7.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 35</p> <p>Setup Diagram Included? Yes Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum, field drum Tom toms Cymbals: suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Rim shot on snare drum Indication to play snare drum on the rim Indication to play tambourine with stick •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes The 2 chimes must be placed on the left and right of the stage Indication to play chimes alternating with soft and hard hammer to achieve tolling effect Indication for double glissando on chimes •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No
<p>Effect Instruments? Yes Whip Anvil Flexatone Finger cymbals Ratchet Temple blocks Police whistle</p>

<ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes The 2 timpanists must be placed on the left and right sides of the stage Glissando Indication to hit both mallets on same timpani Indication to use wood sticks •<i>Are More Than 4 Drums Required?</i> Yes 2 timpanists are required each requiring 3-4 drums •<i>Does it Require Extensive Tuning?</i> No Generally not, except for the parts with glissandos •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th) For the drums combined •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? No</p>
<p>Other Ethnic or Unusual Instruments? Yes Roto-toms</p>
<p>“Found” Instruments? Yes Brake drum Metal plate (with hammer)</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Echoes of Time and the River Composer: George Crumb (b. 1929) Year: 1967</p>
<p>Number of Players Called For: 6 Percussionists No timpanist, percussion player I uses timpani) Number of Individual Instruments Required (Timpani Considered 1 Instrument): 59 Individual bell plates counted as separate instruments because they must be carried Setup Diagram Included? Yes Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended Tam tam</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with the left hand and to apply pressure on the bass drum head with the elbow to achieve pitch contour Indication to scrape the surface of the suspended cymbal with a coin, to play with wire brushes, to apply a coin to the vibrating rim of the cymbal, and to play on the dome with a soft stick Indication to play very small tam tam on the rim, on the dome with a medium hard mallet, scrape the surface with a light metal beater, play on the edge with snare drum sticks, and to apply a coin to the rim of a vibrating tam tam •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Antique cymbals</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication for pitch bending on vibraphone Indication to gliss over vibraphone bars with 2 wire brushes Indication to “dead stick” on xylophone Indication to gliss over glockenspiel plates with 2 wire brushes Indications to hit bell plates against each other and to let them vibrate freely Indication to gliss over chime bars with 2 wire brushes Instructions to strike the 2 plates of the antique cymbals together and then to shake rapidly to produce an oscillation in pitch •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p>

<p>Bamboo wind chimes Glass wind chimes Cowbells Finger cymbals Sleigh bells</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play cowbells with soft mallets <p>• <i>Solo Passages?</i> Yes</p>
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Indication to play the timpani with a single fingertip in the center of the drum <p>• <i>Are More Than 4 Drums Required?</i> No</p> <p>• <i>Does it Require Extensive Tuning?</i> No</p> <p>• <i>Would Tuning Gauges Be Necessary?</i> No</p> <p>• <i>What is the Range of Tunings Required Throughout the Piece?</i> D-Eb (minor 9th)</p> <p>• <i>Solo Passages?</i> Yes</p>
<p>Standard Latin Battery? Yes</p> <p>Congas Bongos Timbales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play timbales with soft felt sticks Indication to play conga drums with a single fingertip in the center of the drum <p>• <i>Solo Passages?</i> Yes</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Large Chinese Temple Gong String of Chinese or Indian Temple Bells Water gong</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Percussionists are required to walk while playing instruments in movements I and IV • Various other orchestra musicians must also play antique cymbals, finger cymbals, and small tambourine • Indication for percussionists to whisper • Indication for the percussionists walking in the processional to use a step pattern in rhythm • Indication for percussion II and III to play on piano strings with medium hard mallets • Indication for percussion II to play on strings of harp with 2 hard marimba sticks in each hand • Indication for some off stage playing

<p>Piece: An Alice Symphony Composer: David Del Tredici (b. 1937) Year: 1969; revised 1971</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 39 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drum: bass drum, snare drums, large parade drum with snares Cymbals: crash, hi-hat, suspended Tam tams Tambourine Triangle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Rim shot on large parade drum •<i>Solo Passages?</i> Yes </p>
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes </p>
<p>Effect Instruments? Yes Templeblocks Whip Wind machine Cowbells Anvils Sleigh bells (tuned) Glass wind chimes Ratchet <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No </p>
<p>Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Glissando </p>

<ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? D-G (11th) •Solo Passages? No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Theremin played through some kind of 'echo-chamber' reverberation unit
"Found" Instruments? Yes High Siren with braking device
Does the Section Operate as a Percussion Ensemble? Yes This is unusual because there is a mallet ensemble
General Comments: <ul style="list-style-type: none"> • Del Tredici writes in the score that unusual percussion instruments are available for rental from Carroll Musical Instrument Service Corp. in New York. The instruments he classifies as unusual are the high siren, Theremin, and three clusters of tuned sleigh bells. He also mentions that brake drums are not a satisfactory substitute for anvils.

<p>Piece: Aureole Composer: Jacob Druckman (1928-1996) Year: 1979</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 34 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tom toms Cymbals: suspended, sizzle Tam tam</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play tom toms with wire brushes, and with soft mallets • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on marimba and vibraphone • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblocks Temple blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play wood blocks with soft mallets Indication to play wood block with hard mallet in such a fashion as to “Lay handle on head of drum, with head of mallet protruding over edge of drum. Flip mallet head causing ricochet while moving mallet in to change relative pitch.” Flexatone glissando • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play timpani at rim Glissando Indication to play timpani with wire brushes • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum required

<ul style="list-style-type: none"> •Does it Require Extensive Tuning? Yes •Would Tuning Gauges Be Necessary? Yes •What is the Range of Tunings Required Throughout the Piece? Eb-B (augmented 12th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes Vibraslap Congas Bongos Timbales</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indication to play bongos with wire brushes, with soft mallets, and with hard mallets Indication to play conga with a mallet that has a flexible handle; the instruction says to "Lay the handle on the head of the drum, with the head of mallet protruding over edge of drum. Flip mallet head causing ricochet while moving mallet in to change relative pitch." Indication to play conga with hard mallets Indication to play timbales with wire brushes •Solo Passages? Yes
Other Ethnic or Unusual Instruments? No
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Prism Composer: Jacob Druckman (1928-1996) Year: 1980
Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 28 Setup Diagram Included? No Multi-Percussion Required? Yes
Standard Percussion Battery? Yes Drums: bass drum Tom toms Cymbals: suspended, sizzle Tam tams Triangle <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play cymbal on dome Indication to use metal triangle beaters on tam tam • <i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Glockenspiel Marimba Chimes Crotales <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on glock Indication to hit chimes with metal beaters • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
Effect Instruments? Yes Temple blocks Woodblocks <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Indication to use wire brushes on timpani so that brushes are striking head and rim simultaneously as in a rim shot Indication to use wood sticks • <i>Are More Than 4 Drums Required?</i> Yes Piccolo timpani required

<ul style="list-style-type: none"> •Does it Require Extensive Tuning? Yes •Would Tuning Gauges Be Necessary? Yes •What is the Range of Tunings Required Throughout the Piece? D-C (minor 14th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes Congas Bongos Timbales</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indication to play conga with a mallet with a flexible head; “Lay handle on head of drum with head of mallet protruding over edge of drum. Flip mallet head causing ricochet while moving mallet in or out to change relative pitch.” •Solo Passages? Yes
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Death and Fire Composer: Tan Dun (b. 1957) Year: 1992</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Timpani also plays percussion Number of Individual Instruments Required (Timpani Considered 1 Instrument): 47 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tom toms (says "Chinese tom toms or standard tom toms") Cymbals: suspended, Chinese cymbals Tam tam</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use fingers on tom toms Indication to use fingers on suspended cymbal Indication to place suspended cymbal on timpani and bow it Indication to use a coin to gliss across a tam-tam • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Whistles Sleigh bells Woodblocks Cowbells Ratchet Whip</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use fingers on woodblocks • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Suspended cymbal placed on timpani and bowed

<ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? E-G (minor 10th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes Maracas Guiro</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? Yes
<p>Other Ethnic or Unusual Instruments? Yes Rototoms</p>
<p>“Found” Instruments? Yes Stones</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Indication to use brushes, fingers and sticks on rototoms • Indication for percussion (and the rest of the orchestra) to speak a word

<p>Piece: Métaboles</p> <p>Composer: Henri Dutilleux (b. 1916)</p> <p>Year: 1965</p>
<p>Number of Players Called For: 6 Percussionists, 1 Timpanist</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 17 Requires some sharing</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, pedal bass drum, snare drum Tom toms Cymbals: crash, suspended, Chinese Tam tams Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Pedal bass drum required Indication to play suspended cymbal in the center (on the bell) • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Glockenspiel Xylophone</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes 3 and 4 note chords in the glockenspiel • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes Difficult, but not requiring memorization • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p> <p>Temple blocks Cowbells</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No Requires moderate tuning • <i>Would Tuning Gauges Be Necessary?</i> No

<ul style="list-style-type: none"> • <i>What is the Range of Tunings Required Throughout the Piece?</i> E-F (minor 9th) • <i>Solo Passages?</i> Yes Short passages
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes <ul style="list-style-type: none"> • The 4th Métabole is a conversation between the orchestra and a percussion ensemble. The percussion ensemble continues a question-answer type of dialogue with the orchestra throughout the movement. In the short percussion ensemble sections the tom toms develop a recurring musical idea.
General Comments: <ul style="list-style-type: none"> • Composer asks for the medium and low tam tam to be tuned to Eb and B respectively

<p>Piece: The Seventh Trumpet Composer: Donald Erb (b. 1927) Year: 1969</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 36 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum Tom toms Cymbals: crash, suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to slow down ad lib. on bass drum Indication to roll on the snare drum rim Indication to use brush on suspended cymbal • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to rub brushes rapidly on the middle register of the vibraphone Glissando Indication to speed up ad lib. on glock • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes String drum (lion's roar) Police whistle Woodblocks Ratchet Temple blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to improvise on wood blocks and temple blocks • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando

<p>Triangle/Timp: this sound is made by laying the bottom of the triangle against the head of the timpani and playing the triangle while pedaling the timpani Indication to play on head with fingertips Indication to improvise with triangle on timpani Indication to roll on bowl Indications to play notes slowing down ad lib. Indication to play on side of any timp</p> <ul style="list-style-type: none"> •<i>Are More Than 4 Drums Required?</i> Yes To achieve the highest pitches (gliss upwards from b) a piccolo drum would be needed •<i>Does it Require Extensive Tuning?</i> Yes Has extensive glissandos •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> D-B (13th) •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes Bongos Timbales Maracas</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to improvise on bongos and timbales •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? Yes Pop bottle partly filled with water Gallon milk jug half filled with water</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • The milk bottle sound is made by using a gallon milk jug half filled with water. The pitch is altered by tilting the jug while striking it. Erb calls for the jug to be struck with both a medium hard mallet and a rubber mallet. • The percussionist must blow into the neck of the pop bottle partly filled with water. • Percussion III must scrape the inside of a piano on the strings

<p>Piece: In Search of an Orchestration Composer: Morton Feldman (1926-1987) Year: 1967</p>
<p>Number of Players Called For: 4 Percussionists Player 3 uses timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 14 More instruments can be used, this is a minimum number Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals Tam tam Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes As per performer discretion hand, fingers, forearms, etc. may be used to play the instruments • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Chimes Antique cymbals</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes As per performer discretion hand, fingers, forearms, etc. may be used to play the instruments • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Temple blocks Woodblocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes As per performer discretion hand, fingers, forearms, etc. may be used to play the instruments • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes As per performer discretion hand, fingers, forearms, etc. may be used to play the instruments

<ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? Only 1 drum required •Solo Passages? Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • Feldman writes in the score: “Percussion includes four categories. Wood, bell-like sounds, percussive skin instruments and Miscellaneous. Miscellaneous will be understood to comprise all percussive instruments not included in the first three categories. A Roman numeral II or III in Percussion indicates that two or three of the given instruments will be played simultaneously. A Roman numeral II in Miscellaneous indicates that two different instruments, chosen by the performer, will be played simultaneously. <i>Cluster</i> indicates a simultaneity of as many instruments as can be quietly sounded. (Fingers, hands, forearm, etc. etc. may be utilized.) • Score written with graphic notation

<p>Piece: Plötzlichkeit</p> <p>Composer: Brian Ferneyhough (b. 1943)</p> <p>Year: 2006</p>
<p>Number of Players Called For: 3 Percussionists No Timpani</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 80</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, snare drum, tenor drum Tom toms Cymbals: suspended Tambourine Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with wire brushes, and at rim Indication to play the tenor drum with a rute, and with wire brushes, and at rim Indication to dampen tenor drum with hand Indication to play serrated rod on edge of dampened suspended cymbal, and with hard rubber mallet Indication to play suspended cymbal on dome and on edge Indication to strike suspended cymbal while damped with hand Indication for tambourine thumb roll Indication to strike tambourine with snare drum stick and to let the stick rebound •<i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play vibraphone with metal sticks, with glockenspiel mallet, and with triangle sticks Indication to play glockenspiel with triangle sticks Indication to play marimba with triangle beaters Indication to play marimba with hard wood sticks, and with rubber sticks Indication to play crotales with triangle beaters •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p>

<p>Ratchet Woodblocks Thunder sheet Whip Wood drums (log drums) Sand blocks Anvils Temple blocks Castanets</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play wood drum with snare drum stick, and with glockenspiel mallets Indication to dead stick on wood blocks Indication to play wood blocks with xylophone sticks Indication to play temple blocks with rubber sticks <ul style="list-style-type: none"> • <i>Solo Passages?</i> Yes
<p>Timpani No</p>
<p>Standard Latin Battery? Yes</p> <p>Claves Bongos Guero Maracas Vibraslap</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications to play claves with varying levels of dampening Indications to play maracas with fingers and with knuckles <ul style="list-style-type: none"> • <i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Nipple gongs (laid flat on clothe) Little hand bells Gongs Rototoms Rute</p>
<p>“Found” Instruments? Yes</p> <p>Brake drums Tin drums</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • This piece looks insanely hard

<p>Piece: Cantata para América Mágica Composer: Alberto Ginastera (1916-1983) Year: 1960</p>
<p>Number of Players Called For: 11 Percussionists and 2 Timpanists Parts "Drums II" and "Percussion II" must also play individual timpani notes Number of Individual Instruments Required (Timpani Considered 1 Instrument): 45 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, side drum, tenor drum Cymbals: suspended, crash Tam tams Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications for tam tam and cymbals to be played with brushes • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Xylophone Glockenspiel Marimba Antique cymbals</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Log drums Cowbells Sleigh bells</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes In the score Ginastera indicates that Timpani I requires 3 kettledrums and that timpani II requires 3 kettledrums; also 2 of the percussionists need to play kettledrum notes which would require 2 more extra kettledrums • <i>Does it Require Extensive Tuning?</i> No

<p>Timpani I and Timpani II require moderate tuning</p> <ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> Yes They may be necessary for timpanists I and II • <i>What is the Range of Tunings Required Throughout the Piece?</i> Timpani I: F-F# (augmented 8th) Timpani II: F-C# (augmented 12th) – the highest notes would require a piccolo drum • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes Réco-réco (notched hollow bamboo stick that is scraped) – (guiro) Bongos Claves Maracas Guiro Chocalho (metal tube shaker)</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes 3 Indian Drums (American Indian) Metallic sistrum Seashell sistrum</p>
<p>“Found” Instruments? Yes Pair of stones</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes The piece is, by nature, a percussion ensemble piece</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • This piece is written for a percussion orchestra and chorus – there are not other instruments involved except for piano and celesta • Ginastera gives the followings notes in his score: <ol style="list-style-type: none"> 1. Three Indian-drums may be substituted by three tom-toms of different sizes. 2. The small metallic “sistrum” is a kind of tiny rattle, a small metal frame upon a handle, through the sides of the frame a set of small loose metal discs which are struck together when shaking the instrument. 3. Wood-drums may be substituted by six temple-blocks of different sizes. 4. “Reco-reco” is a hollowed wooden cylinder with flutings. It is played rubbing the fluted area with a wooden stick. 5. This instrument consists of a pair of small wooden cylinders which sounds when struck together. 6. The “Chocalho” is a hollowed metallic cylinder filled with dried seeds or small stones and sounds when shaken. 7. The “guiro” is a large gourd sounded by scraping a stick over a series of notches cut in the upper surface. 8. A pair of small wooden cylinders sounding when struck together. Their pitch must be lower than the one of the high claves. 9. In the “Fantastic Interlude” maracas are used with “sourdine” which consists of an external cover made with thick woolen cloth. 10. Metallic “sistrum” is a metallic frame upon a handle holding some rows of small

loose metallic discs which strike together when shaking the instrument.

Sea-she "sistrum" is similar to the previous one but filled with sea-shells instead of discs.

11. Consisting of two fist size sea stones or boulders sounding when struck together.

- Most instruments have at least a few solo notes throughout the piece

<p>Piece: Violin Concerto Composer: Alberto Ginastera (1916-1983) Year: 1963</p>
<p>Number of Players Called For: 6 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 47 (requires some sharing) Setup Diagram Included? No Multi-Percussion Required? Yes</p> <ul style="list-style-type: none"> • Special setups would need to be contrived to play the percussion ensemble parts in movement 3
<p>Standard Percussion Battery? Yes Drums: bass drum, tamburo, tenor drum Tom toms Cymbals: suspended, crash Tam toms Tambourine Triangles</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Thumb rolls and shake rolls required on Tambourine • <i>Solo Passages?</i> Yes (during percussion ensemble sections)
<p>Standard Mallet Battery? Yes Xylophone Glockenspiel Marimba Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes (during percussion ensemble sections)
<p>Effect Instruments? Yes Wooden wind chimes Temple blocks Woodblocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes (during percussion ensemble sections)
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No

<p>Requires moderate tuning</p> <ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-F# (augmented 9th) • <i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>réco-réco (notched hollow bamboo stick that is scraped)</p> <p>Bongos</p> <p>Guiro</p> <p>Timbales</p> <p>Maracas</p> <p>Claves</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes (during percussion ensemble sections)
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p> <ul style="list-style-type: none"> • Movement 3 “Scherzo Pianissimo E Perpetuum Mobile” begins with a 50 measure percussion ensemble (including celesta) before the solo violin enters • Movement 3 “Perpetuum Mobile” begins with a 17 measure percussion ensemble
<p>General Comments:</p> <ul style="list-style-type: none"> • Composer writes in notes, “The 3 Tom-toms (large, medium and small), 3 Timbaletas (large, medium and small) and 3 Bongos (large, medium and small) must have an established pitch relationship of altitude between the lowest-pitched instrument (large Tom-tom) and the highest (Bongos piccolo). In the same way there must be an established pitch relationship between the 3 Tam-tams, 3 Piatti sospesi and 3 Triangolo sospesi (from the largest Tam-tam to the Triangolo piccolo). There must also be established an integral relationship between the 6 Temple-blocks <i>di taglia differente</i> and between the 6 <i>paia di Crotali</i> (2 high-pitched; 2 very high-pitched and 2 highest pitched).

Piece: Symphony No. 4 "Heroes: A Symphonic Ballet" Composer: Philip Glass (b. 1937) Year: 1996
Number of Players Called For: 4 percussionists No Timpani (On his website Glass recommends 3 percussionists, but 4 would be necessary for the last movement – even with this situation the bass drum and cymbal will have to be played with attachment) Number of Individual Instruments Required (Timpani Considered 1 Instrument): 11 (On his website Glass does not list the woodblocks that appear in the last movement) Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals Tam tam Tambourine Triangle <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Glockenspiel <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? Yes Castanets Woodblocks <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani? No Timpani Required
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • Composer indicates tenor drum stick choice ("with fuzzy sticks")
Piece: Salve, Sidus Polonorum Composer: Henryk Mikolaj Gorecki (1933-2010) Year: 1997-2000

<p>Number of Players Called For: 6-8 Percussionists No Timpani Gorecki recommends 8 percussionists as does Carroll, Cervenka indicates that the piece can be played with 6 percussionists.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 8</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tam tams</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Glockenspiel Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
<p>Effect Instruments? No</p>
<p>Timpani No</p>
<p>Standard Latin Battery? No</p>
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Symphony of Spirituals Composer: Morton Gould (1913-1996) Year: 1975</p>
<p>Number of Players Called For: 3-4 Percussionists, 1 Timpanist Gould recommends 3 percussionists, Raynor Carroll recommends 4 Number of Individual Instruments Required (Timpani Considered 1 Instrument): 27 Setup Diagram Included? No Multi-Percussion Required? Yes Multi-percussion is required in percussion 2 where the player is required to play on field drum, snare drum and tenor drum in a part contrived for one player</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, field drum, tenor drum Tom toms Cymbals: crash, suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with 2 hammers Indication to play snare drum on rim and with brushes Indication to rub tom tom (presumably with brushes) Indication to rub suspended cymbal and to scrape with triangle beater Indication to rub gong (presumably to scrape) • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Temple blocks Woodblocks Slapstick Whip Sandpaper blocks Castanets</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando

<ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No Requires moderate tuning •Would Tuning Gauges Be Necessary? Yes •What is the Range of Tunings Required Throughout the Piece? F-A (10th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes Gourd Claves Maracas Bongos</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Symphony No. 1 Composer: John Harbison (b. 1938) Year: 1980-81</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 28 Setup Diagram Included? No Multi-Percussion Required? Yes The toms toms must be set up in a multi-percussion fashion</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, 2 tuned drums (to E and D) Tom toms Cymbals: suspended Tam tams Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum on rim Indication to play suspended cymbal with snare drum stick in the center • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Woodblocks Log drums Temple blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> Yes

<ul style="list-style-type: none"> •<i>What is the Range of Tunings Required Throughout the Piece?</i> F#-Ab (diminished 10th) •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Maracas Claves</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? Yes</p> <p>Metal blocks</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>

<p>Piece: Symphony No. 2 Composer: John Harbison (b. 1938) Year: 1986-87</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 30 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum Tom toms Cymbals: suspended, crash cymbals, sizzle Tam tam Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with hard sticks Indication to play suspended cymbal with wire brush • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Temple blocks Thunder sheet Castanets Lion's roar</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Play col legno (reverse ends of sticks) • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> Yes

• <i>What is the Range of Tunings Required Throughout the Piece?</i> D-F# (10 th)
• <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Symphony No. 4 Composer: Lou Harrison (1917-2003) Year: 1990
Number of Players Called For: 4 Percussionists No timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 20 Setup Diagram Included? No Multi-Percussion Required? Yes
Standard Percussion Battery? Yes Drums: bass drum, field drum Chinese drum (tom tom) Cymbal <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to strike cymbal with stick • <i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Chimes <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Vibraphone is asked to improvise melodies on specific tones • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? Yes Sleigh bells <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani No
Standard Latin Battery? Yes Guiro Rasp Rattles (gourd and metal) <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? Yes Gongs Keprak (wooden slit drum from Indonesia; log drum) Gentorak (Balinese bell tree)
“Found” Instruments? Yes Box
Does the Section Operate as a Percussion Ensemble? No

General Comments:

- The celesta player is assigned to the chimes for several bars in mvt. 3
- The composer gives the following preferences regarding instruments:
“Instead of a very large tam tam I much prefer the true Gong Ageng of a gamelan. The kreprak could just barely be imitated by a very large “temple block” struck with a heavy beater, & loudly.

A good collection of small sweet sounding bells with inner “tongues” (each freely suspended could substitute for the Gentorak. The two boxes with rasps should be built of ½ inch marine plywood, & look like this: [illustration follows].

3 Medium Drums – these I would prefer be either double headed Chinese tom-toms, or Amerindian double-head drums.

3 Muted Gongs – these should be the shallowly-curved Chinese kind (with shallow rims) roughly 18” down to 12”, placed hollow-side down on felt.

Rasp in mvt. II could be a guiro, or the higher of the two box-rasps of mvt. IIII [sic].

Rattles in mvt. II may be large maracas [sic], with the metal ones being either the tambourine rattles on a stick or tin cans with beans or pebbles in them.”

<p>Piece: Heliogabalus Imperator Composer: Hans Werner Henze (b. 1926) Year: 1971-72; revised 1986</p>
<p>Number of Players Called For: 5 Percussionists Percussion player 5 utilizes timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 43 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, military drum Tom toms Cymbals: Chinese cymbals Tam toms <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play side drum letting the stick rebound off the head Indication to play tom-tom letting the stick rebound off the head Indication for hard felt mallets on tom toms Indication to hit the center of a suspended cymbal with soft felt Indication for wood mallet, and steel mallet on suspended cymbal Gliss on a tam tom Indication to hit center of tam tom with wood stick, and to play with steel mallets •<i>Solo Passages?</i> Yes </p>
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimba Chimes Antique cymbals Bell plates <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play tubular bells with steel mallet •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes </p>
<p>Effect Instruments? Yes String drum (lion's roar) Castanets Chinese temple blocks Flexatone Cowbells Thunder sheet <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play cowbells with leather mallets and wood mallets </p>

<p>Indication to play thunder sheet with mallets and to shake thunder sheet</p> <p>•Solo Passages? Yes</p>
<p>Timpani</p> <p>•Unusual or Extended Techniques? Yes Glissando Indication to play the timpani with a wood mallet</p> <p>•Are More Than 4 Drums Required? No</p> <p>•Does it Require Extensive Tuning? No</p> <p>•Would Tuning Gauges Be Necessary? No</p> <p>•What is the Range of Tunings Required Throughout the Piece? G#-F# (minor 7th)</p> <p>•Solo Passages? Yes</p>
<p>Standard Latin Battery? No</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Marimbula (African harp) tuned and equipped with a contact microphone; can be replaced by a guitar or plucked piano strings Big temple bell dobači (Japanese) Boo-bams (can be replaced by a marimba with mute) Trinidad steel-drum Elephant's bell (sarna bell)</p>
<p>"Found" Instruments? Yes</p> <p>Fog horn Bird calls (very high, high, medium, low)</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Indication to play boobams with fingers, sticks, and in such a way that the stick rebound off the head

<p>Piece: Symphony No. 9 Composer: Hans Werner Henze (b. 1926) Year: 1995-97</p>
<p>Number of Players Called For: 4-8 Percussionists, 1 Timpanist Henze recommends 4 percussionists, Cervenka recommends 8 Number of Individual Instruments Required (Timpani Considered 1 Instrument): 40 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum (with or without attachment), snare drum Tom toms Cymbals: suspended, crash cymbals Tam tams Tambourine <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum with medium stick Indication to play tom toms with medium hard mallet, soft mallet, and with wood mallet Indication to play suspended cymbal with snare drum stick, and with medium stick Indication to scrape tam tam •<i>Solo Passages?</i> Yes </p>
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimbaphone Chimes Crotales <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes </p>
<p>Effect Instruments? Yes Wood block Castanets Ratchet Whip Anvil Thunder sheet Police whistle Flexatones Temple blocks <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No </p>

<p>•Solo Passages? No</p>
<p>Timpani</p> <p>•Unusual or Extended Techniques? Yes It appears that there is an indication to use a wooden mallet; Henze doesn't provide a key for some of his mallet indication, but it would seem to mean wooden mallet or very hard mallet Indication to play with a cork mallet</p> <p>•Are More Than 4 Drums Required? Yes Requires 5 drums because of tuning issues</p> <p>•Does it Require Extensive Tuning? Yes</p> <p>•Would Tuning Gauges Be Necessary? Yes</p> <p>•What is the Range of Tunings Required Throughout the Piece? Eb-A (augmented 11th)</p> <p>•Solo Passages? No</p>
<p>Standard Latin Battery? Yes</p> <p>Bongos Maracas Guiros</p> <p>•Unusual or Extended Techniques? No</p> <p>•Solo Passages? No</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Chinese gongs (7 pitches)</p>
<p>"Found" Instruments? Yes</p> <p>Bronze plate Metal block Suspended glass sheets Siren</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Violin Concerto Composer: Jennifer Higdon (b. 1962) Year: 2009</p>
<p>Number of Players Called For: 2 Percussionists, 1 Timpanist Timpanist must also play some percussion Number of Individual Instruments Required (Timpani Considered 1 Instrument): 11 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended, Chinese, sizzle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to strike Chinese cymbal with drumstick, and with marimba mallet Indication to strike suspended cymbal with drumstick •<i>Solo Passages?</i> No </p>
<p>Standard Mallet Battery? Yes Glockenspiel Marimba Chimes Crotales <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play glockenspiel with rubber mallet Indication to play glockenspiel with knitting needles Indication to play crotales with knitting needles Indication to play crotales upside-down on timpani head and strike with mallet while moving pedal Indication to play crotales with rubber mallet •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> Yes </p>
<p>Effect Instruments? No</p>
<p>Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to place crotales upside-down on timpani head and strike with mallet while moving pedal Glissando •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No </p>

• <i>What is the Range of Tunings Required Throughout the Piece?</i> D-B (13 th)
• <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Rute (strike against hand)
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Floating World Ballade for Orchestra, Opus 209 Composer: Alan Hovhaness (1911-2000) Year: 1964</p>
<p>Number of Players Called For: 7 Percussionists, 1 Timpanist While all percussionists spend some portion of the work Ad lib., percussion 1, 2 and 3 also have regularly written out parts for a large portion of the work. Percussion 4, 5, 6 and 7 only have Ad. Lib. style parts and are ranked in importance by Hovhaness as percussion 6 (vibraphone II), percussion 7 (chimes II), percussion 4 (giant tam-tam) and percussion 5 (glockenspiel II)</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 11 (percussion 4 shares giant tam tam with percussion 1)</p> <p>Setup Diagram Included? No Multi-Percussion Required? No (while percussion 1, 2 and 3 are required to play more than 1 instrument each it does not constitute multi-percussion)</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tam tam</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Ad Lib. Repetition of written out passages required for all instruments (“planned chaos”) • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Ad Lib. Repetition of written out passages required for all instruments (“planned chaos”) • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? No</p>
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> G-F# (Major 7th)

• <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes
General Comments: <ul style="list-style-type: none">• The percussion ensemble unit has a solo in which several of the instrument are involved

Piece: Symphony no. 19: Vishnu Composer: Alan Hovhaness (1911-2000) Year: 1966
Number of Players Called For: 6 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 8 Players 1 and 2 must share a giant tam tam Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum Tam tams <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Percussion 4 (vibraphone II) and Percussion 6 (chimes II) are required to play <i>ad lib.</i> •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes The mallet runs may require some rehearsal, but do not necessarily need to be memorized •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No There are no individual solos, however the mallet section does solo together many times throughout the piece
Effect Instruments? No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No •<i>What is the Range of Tunings Required Throughout the Piece?</i> F-D (Major 6th) •<i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No

While the percussion section does have several solos during this work, the nature of the work itself does not allow for the development of rhythmical ideas or rhythmic interplay between the instruments of the percussion section. Additionally musical ideas per se aren't being developed during these sections.

<p>Piece: Mosaïques Composer: Karel Hüsa (b. 1921) Year: 1960</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 13 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals: suspended Tam tams</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Instructions to play cymbal with stick near the middle and near the edge Instruction to scrap cymbal with triangle beater • <i>Solo Passages?</i> Yes – some solo individual notes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Marimba Bells (chimes)</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblock</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Timpani coperti Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> F-F# (Augmented 8th)

• <i>Solo Passages?</i> Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none">• Specifies mallet types to be used (hard or soft) for almost every instrument

<p>Piece: Flourish With Fireworks Composer: Oliver Knussen (b. 1952) Year: 1988</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 15 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals: suspended Tam tam Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use wooden stick on suspended cymbal Indication to use hard stick on tam tam • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to bow the vibraphone • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Whip Woodblocks (see special or unusual instruments)</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes The part requires a piccolo timpani, however; it is written for 3 drums plus piccolo timpani • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> F#-B (11th)

• <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Three pitched woodblocks are required; Knussen writes, "The three Woodblock parts were written for Japanese toy instruments (Den Den Daiko). If these are unavailable, the best substitute would be three pairs of Claves with similar pitches (on of each pair mounted), or small mounted Castanets.
"Found" Instruments? Yes Spring Coil
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: The Way to Castle Yonder Composer: Oliver Knussen (b. 1952) Year: 1988</p>
<p>Number of Players Called For: 3-4 Percussionists, 1 Timpanist Knussen recommends 4 players total with percussion I playing timpani I and percussion II playing timpani II; Carroll and Cervenka recommend 1 timpanist and 4 percussionists. Number of Individual Instruments Required (Timpani Considered 1 Instrument): 19 Requires some sharing. Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, side drum Cymbals: suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Snare drum without snares Indications to play snare drum with stick butts on rim, and rim shots Thumb rolls on tambourine •<i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No
<p>Effect Instruments? Yes Castanets Sleigh bells</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Glissando Indication to play with hard sticks near the rim •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No

<ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-Db (minor 7th) • <i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>Vibraslap</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Contextures: Riots-Decade '60</p> <p>Composer: William Kraft (b. 1923)</p> <p>Year: 1967</p>
<p>Number of Players Called For: 6 Percussionists, 1 Timpanist Kraft says that Percussion VI must be an accomplished jazz drummer</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 70</p> <p>Setup Diagram Included? No Kraft does give the division of who plays which instruments</p> <p>Multi-Percussion Required? Yes Drumset part required Several parts for multiple drums to be played by 1 player</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum, field drum Cymbals: crash, sizzle, suspended Tam tams Triangles</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes The drumset must be played offstage Indications to mute bass drum Indication to play bass drum so that rattan is slapped on right head and muffled with the base of the palm for sharpness and the LH is to play on the left head with medium soft mallet Indications to play snare drum with snares off Indication to play snare drum with brushes Indications for graduated drums to be played with brushes Indications for 2 cymbals to be rubbed together in a circular motion Indications for certain figures to be played at random but not closer than six seconds apart •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales Bell plates</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play muted vibraphone – Kraft says “lay a rubber backed rug over the keyboard” Indications to strike and hold mallet against the bars (seems to indicate a dead stroke) Indications for glockenspiel muffling An offstage Db chime is optional •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes

<ul style="list-style-type: none"> •Solo Passages? Yes
<p>Effect Instruments? Yes</p> <p>String Drum (Lion's Roar)</p> <p>Wind chimes made of bamboo, light metal tubes, light metal leaves, and glass</p> <p>Anvils</p> <p>Cowbells</p> <p>Temple blocks</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? Yes
<p>Timpani</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes <p>Indications to play timpani muted</p> <ul style="list-style-type: none"> •Are More Than 4 Drums Required? Yes <p>Kraft specifies 5 or 6 at player's discretion</p> <ul style="list-style-type: none"> •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No <p>Especially not if 6 drums are used</p> <ul style="list-style-type: none"> •What is the Range of Tunings Required Throughout the Piece? C-C (15th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos</p> <p>Timbales</p> <p>The Latin instruments (bongos and timbales) are used as part of a relatively tuned non-pitched drum set</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes <p>Brushes and snare drum sticks on bongos and timbales</p> <ul style="list-style-type: none"> •Solo Passages? Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>6 graduated knob-type gongs (Thai, Balinese, Burmese nipple gongs)</p> <p>Roto-toms</p>
<p>"Found" Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Kraft gives a key indicating mallets of different hardness • Kraft gives some possible instrument substitutions as follows: muted gongs may be substituted with something like stainless steel bowls laid upside down, 2 bell plates may be substituted with low chimes • Kraft includes manufacturer information, saying that "Tuned drums are manufactured by Remo, Inc. (Sherman Oaks, Calif.) with the name 'Roto-Toms.'"

<p>Piece: Interplay</p> <p>Composer: William Kraft (b. 1923)</p> <p>Year: 1982; revised 1984</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist, 6 Offstage crotale Players Timpanist also plays crotales</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 63</p> <p>Setup Diagram Included? Yes</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, graduated drums (unspecified)</p> <p>Cymbals: crash, suspended</p> <p>Tam tam</p> <p>Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play graduated drums with brushes, pottery mallets, snare drum sticks Indication to play suspended cymbal with triangle beater and to gliss on the cymbals • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Glockenspiel</p> <p>Marimba</p> <p>Chimes</p> <p>Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication that marimba should be raised over vibraphone to provide 2 manuals Indication to bow crotales Indication to play crotales with medium soft mallet Indication to offstage crotales • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p> <p>Temple blocks</p> <p>Cowbells</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play with vibraphone mallets or medium hard xylo mallets, and snare drum sticks on temple blocks • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Indication to play timpani with brushes

<p>Indication to lightly mute drum</p> <ul style="list-style-type: none"> • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum required • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes Vibraslap</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • Kraft writes that all crotale and glock mallets should be of hard rubber rather than plastic or brass. • Kraft writes that for the crotales a total of 12 bows and 12 pairs of mallets are needed – 6 of each on stage and 6 of each offstage. • The keyboardist and harpist also play crotales (stuck and bowed). • There is a percussion fermata for which Kraft writes percussionists start with pottery mallets on 5 graduated drums. At I (conductors signal) P2 will move to temple blocks with hard vibraphone mallets or medium xylo mallets. Then P3 moves to cow bells with similar mallets. Then P1 to snare drum sticks. At II P2 moves to snare drum sticks then P3 to snare drum sticks.

<p>Piece: ...Quasi Una Fantasia...for Piano and Groups of Instruments Composer: Györgi Kurtág (b. 1926) Year: 1988</p>
<p>Number of Players Called For: 9 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 38 Setup Diagram Included? No</p> <p>However the following explanation on the position of the ensemble is given: The various groups of instruments are to be seated in the room as to be separated from each other as far as possible.</p> <p>A) If the hall has a stage and a balcony (dress circle, upper circle and gallery):</p> <ol style="list-style-type: none"> 1. Only the piano and the timpani should be on the stage. (If otherwise not possible the vibraphone/marimbaphone and the cimbalom can also be put on the stage.) 2. The group consisting of vibraphone/marimbaphone – cimbalom, the hard and celesta, the group of other percussion instruments (those marked with <i>eco</i> well separated even within this) as well as the mouth organs [harmonicas] should be at medium level, scattered at some distance from one another. 3. The group of strings, woodwinds and brass players is to be seated on the highest level possible, separated from each other and at the remotest point from the piano. 4. The bell parts can be played [by] any member of the ensemble; if several performers are available for this purpose they should be placed at different points of the hall, among the audience. <p>B) If there is no possibility for placing the players on several levels, the individual groups of instruments should be put at a proportionately growing distance from the piano and surrounding the audience.</p>
<p>Multi-Percussion Required? Yes</p> <p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, snare drum without snares, snare drum with snares Cymbals: suspended, crash Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Snare drum without snares Indication to play suspended cymbal with knitting needle on edge • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone Marimba Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No

Effect Instruments? No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando Indication to play with wood mallets • <i>Are More Than 4 Drums Required?</i> Yes • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th) • <i>Solo Passages?</i> Yes
Standard Latin Battery? Yes Maracas Bongos <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? Yes Gongs (unspecified pitches) Indian bells Bamboo shakers (anklung) Bicycle bells
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • The “Sonagli” group includes Indian bells, bamboo shakers (anklung), maracas, bicycle bells, etc. This group is asked to play improvisation at short, nervous, convulsive formulas; at irregular intervals and in irregular sequence.

Piece: Atmosphères
Composer: György Ligeti (1923-2006)
Year: 1961
Number of Players Called For: 2 Percussionists No Timpani The percussionists play on piano strings – Ligeti writes “piano” in the score but then specifies 2 players – if possible percussionists
Number of Individual Instruments Required (Timpani Considered 1 Instrument): 1-2 One piano can be used, but 2 are preferred
Setup Diagram Included? Yes Ligeti writes instructions as to where the piano should be placed
Multi-Percussion Required? No
Standard Percussion Battery? No
Standard Mallet Battery? No
Effect Instruments? No
Timpani? No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • Ligeti writes that “the piano is to be placed as near as possible to the trombones. The top is to be removed. Before beginning the piece, the piano pedal is to be depressed and secured with a wood wedge or a suitable weight. The piano part is to be performed by two players. If possible, two pianos should be used instead of one. In this case, the second played stands at the second piano in the same manner as the first player at the first piano. <p>The piano part consists entirely of sounds made by sweeping across the strings. The necessary tools are: a pair each of wire brushes (those used by jazz drummers), thick, soft, wadded cloths, and two pairs of brushes for each player. For the lower and middle strings it is best to use large clothes-brushes of horse hair, very compact and not soft; for the higher strings smaller brushes, for example rather hard nail brushes, their size depending on the available space in the piano. The sweeping motions are to be so performed that a soft, completely continuous and balanced sound is created, without any glissando character and without a trace of periodicity.”</p>

<p>Piece: Macabre Collage for Large Orchestra Composer: György Ligeti (1923-2006) Year: 1974-77; revised 1991</p>
<p>Number of Players Called For: 3-6 Percussionists Percussion player 1 utilizes timpani. Ligeti recommends 3 percussionists and Carroll recommends using 6 percussionists (3 are offstage). Number of Individual Instruments Required (Timpani Considered 1 Instrument): 49 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum, field drum Tom Toms Cymbals: suspended, crash Tam Tam Tambourine</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play suspended cymbal with wood beater Indication to play tambourine with thumb (thumb roll) • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Swanee whistle (slide whistle) Castanets Temple Blocks Woodblocks Flexatone Log drum</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> Yes

<ul style="list-style-type: none"> •<i>Does it Require Extensive Tuning?</i> Yes •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> Db-B (augmented 13th) •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos Conga Claves</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes <p>Indication to play conga with hands Indication to play bongo with the hands</p> <ul style="list-style-type: none"> •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Bass xylophone Tuned Gong</p>
<p>“Found” Instruments? Yes</p> <p>Gunshot Sirens Car horns</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p>

<p>Piece: Cantigas Composer: Magnus Lindberg (b. 1958) Year: 1998-99</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 36 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, tenor drum Tom toms Cymbals: Chinese cymbal, suspended Tam tam Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play suspended cymbals with brushes Indication to play tam tam with metal stick, to play letting the triangle resonate against the surface, and to scrape metal beater across surface • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Marimba Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on chimes • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Bell tree Mark tree Temple blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes Piccolo timpani needed; 5 or 6 drums would be needed to achieve the tuning • <i>Does it Require Extensive Tuning?</i> Yes

<ul style="list-style-type: none"> •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> C-Bb (minor 14th) •<i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>Bongos Maracas</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Thai gongs</p>
<p>“Found” Instruments? Yes</p> <p>Spring coil</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Kraft</p> <p>Composer: Magnus Lindberg (b. 1958)</p> <p>Year: 1983-85</p>
<p>Number of Players Called For: 4 Percussionists</p> <p>No timpani; there is also a 6 person “soloist group” that performs as well and each of those players play numerous percussion objects, although they aren’t all necessarily percussionists. I will examine the orchestral percussionists only.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 86</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, snare drum</p> <p>Tom toms</p> <p>Cymbals: Chinese cymbal, suspended cymbals, sizzle, hi-hat</p> <p>Tam tams</p> <p>Tambourine</p> <p>Triangle</p> <p>•<i>Unusual or Extended Techniques?</i></p> <p>Indication to play bass drum with brushes, and wood stick</p> <p>Indication for rim shot on snare drum</p> <p>Indication to play tom tom with brushes, and to rub with super ball</p> <p>Indication to play suspended cymbal with wood sticks, brushes, and to hit on the rim with a triangle stick, and to hit on center, and to bow</p> <p>Indication to rub triangle sticks on tam tam, and play with metal sticks on rim</p> <p>Indication to tap tambourine with fingers</p> <p>•<i>Solo Passages?</i> No</p>
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Glockenspiel</p> <p>Marimba</p> <p>Chimes</p> <p>Crotales</p> <p>•<i>Unusual or Extended Technique?</i> Yes</p> <p>Indication to play chimes with triangle sticks</p> <p>•<i>4-Mallet Technique?</i> No</p> <p>•<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No</p> <p>•<i>Difficult Pedaling Technique Involved?</i> No</p> <p>•<i>Solo Passages?</i> No</p>
<p>Effect Instruments? Yes</p> <p>Almglocken</p> <p>Sleigh bells</p> <p>Woodblocks</p> <p>Temple blocks</p> <p>Whip</p>

<p>Ratchet Wood drums (log drums) •<i>Unusual or Extended Techniques?</i> Yes Indication to bow almglocken Indication to hit almglocken with wood stick •<i>Solo Passages?</i> No</p>
<p>Timpani No</p>
<p>Standard Latin Battery? Yes Bongos Congas Cabasa Maracas Guiro Claves •<i>Unusual or Extended Techniques?</i> Yes Indication to play bongos and congas with hands •<i>Solo Passages?</i> No</p>
<p>Other Ethnic or Unusual Instruments? Yes Thai gongs Hand bells</p>
<p>“Found” Instruments? Yes Metal plates “Mahler” Hammer (Sledge Hammer)</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • A soloist group plays with the orchestra. As such, that group will be left out of the orchestral analysis. 6 players play the following instruments: Player A: Clarinets and percussion objects; bamboo chimes, Chinese cymbal, castanets, opera gong (with downward gliss), tam-tam (medium size, shared with player C), claves, paper sounds (sound of crunching of), ping pong balls, crotales, water sounds (by blowing pipe into bucket of water). Player B: Cello and percussion objects; maracas, Chinese cymbal, metal block, crotales, tam-tam (large, diameter ca. 55 cm, shared with player E) (this tam-tam should ideally be suspended from the ceiling in the center of the hall, allowing it to rotate (vertically) freely). Player C: Piano (bring to the piano a triangle, triangle stick, ping pong balls and finger thimbles) and percussion objects: tam-tam (medium size, shared with player A), lion’s roar, spring coil, stones (rattling of, in bucket), 2 almglocken (not mounted, but seated on a raw surface, rubbed together to produce continuous scratching sound), bongo drum (upside down, containing grains to make a rattling sound, bamboo chimes, gong (large), sandpaper blocks, opera gong (with downward gliss), metal block, metal plate, chocola, crotales, water sounds (see expl. For player A), branches (a bundle of small, dry, wooden branches, sound of crunching of...)). Player D: Percussion objects; metal foil (sound of crunching of), cymbal (suspended), snare drum, sandpaper blocks, stone claves, bamboo chimes, 2 almglocken (see expl.for player C), 4 electronic drumpads, 4 rototoms, 5 timpany (bring marbles, coins and hard rubber ball i.e. “superball”), 3 Chinese cymbals, opera gong (with downward gliss) 2 metal blocks, maracas, crotales (Arco), bell tree, triangle, temple bell, ceramics

(3-5 ordinary ceramic potteries, f.i. flower pots), vibraphone, woodblock, water sounds (see expl. For player A)

Player E: Percussion objects; tam tam (shared with player B), tambourine, cymbal (suspended), metal block, opera gong (with downward gliss), triangle, almglocken (Arco), metal plate.

Player F: Ideally, Player F should be the conductor, but an additional soloist may perform this part ad lib.) Percussion objects; referee whistle, wine glass, stones (in a bucket, rattling sound of), rotating objects.

<p>Piece: Concerto for Cello and Orchestra Composer: Witold Lutoslawski (1913-1994) Year: 1970</p>
<p>Number of Players Called For: 3 Percussions, 1 Timpanist Lutoslawski has this work scored for 3 percussionists with percussion 1 playing timpani, although both Raynor Carroll and Ed Cervenka recommend 3 percussionists plus a timpani player</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 25 Requires some sharing</p> <p>Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum/attachment, tambour, tenor drum Tom toms Cymbals: suspended Tam tam Tambourine</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to use bass drum with attached cymbal Indication to play on bass drum with wood sticks Indication to use tambour with and without snares Indication to play tam tam with wood sticks •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Chimes</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play a figure on xylophone which is not a glissando but which is a series of notes, starting on G, ascending and alternating high/low (pg. 48) Indication to “Grasp a few pipes [of bell pitches] with both hands, squeeze them firmly to produce the sound and let them vibrate” Extended range of chimes required – requires notes extending down to a C below middle C •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Whip Woodblocks</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No

Timpani

- *Unusual or Extended Techniques?* Yes
3 timpani with unspecified pitches are used
Indication to use wood sticks on timpani
Glissando
- *Are More Than 4 Drums Required?* No
- *Does it Require Extensive Tuning?* No
- *Would Tuning Gauges Be Necessary?* Yes
- *What is the Range of Tunings Required Throughout the Piece?* F-F# (augmented 8th)
- *Solo Passages?* Yes

Standard Latin Battery? No

Other Ethnic or Unusual Instruments? No
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“Found” Instruments? No

Does the Section Operate as a Percussion Ensemble? No
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Piece: Les Espaces Du Sommeil Composer: Witold Lutoslawski (1913-1994) Year: 1975
Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 19 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: tamburo Tom toms Cymbals: suspended Tam tams Tambourine <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> Yes
Effect Instruments? No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Glissando •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> Yes Occasions where the timpanist would have to retune without enough time to do it by ear •<i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-G (10th) •<i>Solo Passages?</i> Yes
Standard Latin Battery? Yes Bongos <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No

The bongos are written in a sequence with the toms • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Des Canyons aux Etoiles Composer: Olivier Messiaen (1908-1992) Year: 1970-74</p>
<p>Number of Players Called For: 7 Percussionists No Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 36 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended Tam tams Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play cymbal with stick and to rest a metal implement on the cymbal while rolling Indication to play tambourine with thumb • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Xylorimba Glockenspiel Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on Xylorimba Indications to play chimes with triangle beater Glissando on crotales • <i>4-Mallet Technique?</i> Yes On glissandos • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Wind chimes made of bamboo, glass, and shell Sleigh bells (Grelots) Whip Ocean drum Temple Blocks Woodblocks Thunder sheet Wind machine</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No

• <i>Solo Passages?</i> Yes
Timpani? No
Standard Latin Battery? Yes Réco-réco (scraper) Maracas Claves Conga • <i>Unusual or Extended Techniques?</i> Yes Indications to play tumba in the center and on the edge with hands • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? Yes Gongs
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: • Messiaen calls for a Xylorimba rather than a xylophone or marimba

Piece: Éclairs sur L'au-delà... Composer: Olivier Messiaen (1908-1992) Year: 1988-92
Number of Players Called For: 10-15 Percussionists No Timpani. Cervenka recommends 10 percussionists, Messiaen recommends 12, and Carroll recommends 15. Number of Individual Instruments Required (Timpani Considered 1 Instrument): 37 Setup Diagram Included? No Multi-Percussion Required? Yes
Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended Tam tams Triangle <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? Yes
Standard Mallet Battery? Yes Xylophone Glockenspiel Xylorimba Marimba Chimes Crotales <ul style="list-style-type: none"> •Unusual or Extended Technique? No •4-Mallet Technique? Yes •Are the Parts Difficult (beyond sight-reading capability or requiring memorization)? Yes •Difficult Pedaling Technique Involved? N/A •Solo Passages? Yes
Effect Instruments? Yes Wind machine Woodblocks Temple blocks Whip <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? Yes
Timpani No
Standard Latin Battery? Yes Réco-réco (guiro) <ul style="list-style-type: none"> •Unusual or Extended Techniques? No •Solo Passages? No
Other Ethnic or Unusual Instruments? Yes Gongs

Xylorimba
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Sinfonia Votiva (Symphony No. 8) Composer: Andrzej Panufnik (1914-1991) Year: 1980-81
Number of Players Called For: 5 Percussionists No Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 12 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Cymbals: suspended Tam tams Triangles <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play suspended cymbal with triangle beater, and with snare drum sticks •<i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to play vibraphone with metal sticks Glissandos on glock and vibraphone •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes
Effect Instruments? No
Timpani No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Fluorescences</p> <p>Composer: Krzysztof Penderecki (b. 1933)</p> <p>Year: 1962</p>
<p>Number of Players Called For: 6 players total (timpanist must also play percussion)</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 44</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: military drums</p> <p>Tom toms</p> <p>Cymbals: suspended</p> <p>Tam tams</p> <p>Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes <p>Indications to play tom toms and tambour with one drumstick striking the other drumstick after having laid it on the striking surface of the instrument, also to play in the middle and edge at the same time with a drumstick, and also to play at the edge with a drumstick</p> <p>Indication to play tom toms with brushes and to rub the tom tom skin with the palm of the hand</p> <p>Indication for suspended cymbals to be played with brushes</p> <p>Indication to play tam tam with brushes and with a triangle rod</p> <p>Indication for triangle to be played with drumstick and timpani sticks</p> <ul style="list-style-type: none"> • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes <p>Indication for vibraphone to be played with drumstick</p> <ul style="list-style-type: none"> • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p> <p>Whistles</p> <p>Woodblocks</p> <p>Flexatone</p> <p>Ratchet</p> <p>Cowbells</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes <p>Indication to play woodblocks with snare drum sticks</p> <ul style="list-style-type: none"> • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes

<p>Indications to play the timpani with one drumstick striking the other drumstick after having laid it on the striking surface of the instrument, also to strike the timpani in the middle and edge at the same time with a drumstick, and also to strike the timpani at the edge with a drumstick Indication to rub the timpani head with the palm of the hand Glissando</p> <ul style="list-style-type: none"> • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> No pitches indicated; the composer only indicates that 4 drums are to be used. • <i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes Claves Bongos Guiro</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications to play bongos with one drumstick striking the other drumstick after having laid it on the striking surface of the instrument, also to strike the bongo in the middle and edge at the same time with a drumstick, and also to strike a bongo at the edge with a drumstick • <i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes Gong Giavanese (Javanese Gong) Campanello elettrico (electric bell)</p>
<p>“Found” Instruments? Yes Un pezzo di ferro (a piece of iron/metal) Lastra (metal slab to be rubbed with a file) Un pezzo di vetro (a piece of glass) Un pezzo di legno (a piece of wood) Sega (hand saw) Macchina da scrivere (typewriter) Sirena (siren)</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • There are moments when particular percussion instruments are sustaining sounds without accompaniment for short periods of time before other instruments enter, but I hesitate to call them “solos” because the nature of piece does not suggest that these instances are solos. Also, to the ear it is almost impossible to distinguish individual percussion sounds from the other unusual sounds coming from the orchestra.

<p>Piece: Night Dances Composer: Vincent Persichetti (1915-1987) Year: 1970</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 12 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Cymbals: suspended Tam tam Tambourine</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Indication play snare drum with snares off, with brushes, and on the rim Indication to play cymbal with snare drum stick, and with brushes Indication to play the tambourine on the knee • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Xylophone Glockenspiel</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on xylophone • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes The xylophone part is maybe just hard enough that sight-reading would be difficult • <i>Difficult Pedaling Technique Involved?</i> N/A • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblock</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> E-A (11th)

• <i>Solo Passages?</i> Yes
Standard Latin Battery? Yes Timbales • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes

Piece: Symphony no. 7 Composer: Walter Piston (1894-1976) Year: 1960
Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 9 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum, snare drum Cymbals: crash, suspended Tam tam Tambourine Triangle <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Instruction to play bass drum with timpani stick Instruction to play tam tam with timpani stick Instruction to play triangle with metal stick Instruction to play triangle with snare drum stick • <i>Solo Passages?</i> No
Standard Mallet Battery? No
Effect Instruments? Yes Woodblock <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> • <i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No Moderate tuning required • <i>Would Tuning Gauges Be Necessary?</i> No Much of the tuning is chromatic and could be achieved easily enough without gauges • <i>What is the Range of Tunings Required Throughout the Piece?</i> F-F (8th) • <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: "...Body and Shadow..."</p> <p>Composer: Bernard Rands (b. 1934)</p> <p>Year: 1988</p>
<p>Number of Players Called For: 4-6 Percussionists, Timpanist Rands calls for 4 percussionists, Carroll call for 6.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 26</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, snare drum</p> <p>Tom toms</p> <p>Tam tam</p> <p>Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use medium hard yarn mallets, and soft yarn mallets on tom toms • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphones</p> <p>Marimbas</p> <p>Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on vibraphone Indication to use hard plastic xylophone mallets on vibraphone Glissando on marimba Indication to use very hard plastic xylophone mallets on marimba Indication to use medium hard yarn mallets on chimes • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p> <p>Temple blocks</p> <p>Almglocken</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use medium hard yarn mallets, and soft yarn mallets on temple blocks Indication to use medium hard yarn mallets on almglocken • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes At least 5 drums required

<ul style="list-style-type: none"> • <i>Does it Require Extensive Tuning?</i> Yes • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-A (13th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos Claves</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to use medium soft yarn mallets, and soft yarn mallets, and snare drum sticks on bongos • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? No</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • This piece begins with an extended timpani solo

<p>Piece: The Desert Music Composer: Steve Reich (b. 1936) Year: 1984</p>
<p>Number of Players Called For: 7-9 Percussionists, 2 Timpanists Reich recommends 7 percussionists, Cervenka recommends 8, and Carroll recommends 9</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 19</p> <p>Setup Diagram Included? Yes Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drums Tam tam</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Bass drum dampening specified • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphones Xylophones Glockenspiels Marimbas</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Vibraphone mallet dampening required Hard rubber mallets on glockenspiel Medium hard rubber mallets on Marimba Mallet dampening required on glockenspiel, marimba, and xylophone • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? No</p>
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Timpani muted • <i>Are More Than 4 Drums Required?</i> Yes 2 Timpanists are needed, each requiring a set of 4 drums and roto-toms (instead of piccolo timpani) • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> D#-Db (diminished 15th)

<p>Timpani I: D#-Db (diminished 15th) Timpani II: F-Db (minor 13th)</p> <p>•Solo Passages? No</p>
<p>Standard Latin Battery? Yes</p> <p>Maracas</p> <p>•Unusual or Extended Techniques? No</p> <p>•Solo Passages? Yes</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Roto-toms</p>
<p>“Found” Instruments? Yes</p> <p>Sticks (Rattan or plastic mallet handles)</p>
<p>Does the Section Operate as a Percussion Ensemble? Yes</p> <p>There are sections of percussion section solo. It is a little Ostinato-like, however so is the whole piece.</p>
<p>General Comments:</p> <ul style="list-style-type: none"> • This work requires 2 marimbas, 2 vibraphones, 2 xylophones, 2 glockenspiels, and 2 bass drums • The timpanists also play roto-toms

Piece: Tehillim Composer: Steve Reich (b. 1936) Year: 1981
Number of Players Called For: 6 Percussionists No Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 11 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Tambourines <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Tuned tambourines without jingles Tuned tambourines must hit with dowels covered with moleskin • <i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Marimba Crotales <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? No
Timpani No
Standard Latin Battery? Yes Maracas <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? Yes Reich calls for clapping
Does the Section Operate as a Percussion Ensemble? No There are a few measures of percussion section solo, but the percussion section is just continuing to play its Ostinato.
General Comments: <ul style="list-style-type: none"> • Reich says, “The tambourines without jingles used in the score are perhaps similar to the small drum called <i>tof</i> in Hebrew in Psalm 150 and several other places in the Biblical text. Hand clapping as well as rattles were also commonly used throughout the Middle East in the Biblical period as were small pitched cymbals.” • Reich also includes information about where to find the tambourine. He says, “One type of tambourine without jingles is imported from Brazil by the Latin Percussion

Company of Garfield, New Jersey, USA...It is called 'Tambourim' and is supplied with either leather or plastic heads and a tuning key. If it is available in two sizes, 5 inch or 6 inch, the large drums should be used for the lower notes and the smaller for the higher notes. If one size is available, proper tuning can still be done with a bit more effort. The leather head sounds better but is harder to keep in tune. A small dowel stick about 9 or 10 inches long and 3/8 inch of an inch in diameter is used to play with. Several layers of felt padding (moleskin) should be wrapped around the end used to strike the Tambourim." Reich also includes a photograph of the instrument he has in mind.

<p>Piece: Gorgon Composer: Christopher Rouse (b. 1949) Year: 1984</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 64 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, field drum, tenor drum Tom toms Cymbals: suspended, Chinese cymbal, sizzle cymbal, crash Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with hard rubber mallets Indication to play tenor drum with hard yarn mallets Indication to play snare drum with hard yarn mallets Indication to play tom toms with medium yarn mallets, and with brushes Indication to play suspended cymbal with snare drum, and on dome Indication to play tam tam on front rim Indication to play tambourine with knuckles • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales Bells plates</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando Indication to play glockenspiel with brass mallets Indication to play a “double glissando” on chimes Indication to play metal plates with hammer • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblocks Thunder sheet Wind chimes</p>

<p>Flexatone Sandpaper blocks Sleigh bells Slapstick Castanets Log drums Cowbells String drum (lion's roar) Temple blocks Ratchets</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to strike thunder sheet with bass drum beater Indication to play cowbell with hard rubber mallet • <i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play timpani with wood mallet Indication to play timpani with hard yarn mallet • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> E-A (11th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Claves Bongos Timbales Guiro Vibraslap Quica Maracas Conga Cabasa Tubo (chocallo) (shaker)</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bongos with snare drum sticks, medium yarn mallets, and brushes Indication to play conga with hard yarn mallets Indication to play timbales with brushes, and with snare drum sticks • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Rute Lujon (very large kalimba) Large button gong Waterphone</p>

“Found” Instruments? Yes

Brake drum

Tibetan prayer stones

Hammer

Does the Section Operate as a Percussion Ensemble? Yes

This piece includes both a regular percussion ensemble and a mallet ensemble

Piece: À La Fumée Composer: Kaija Saariaho (b. 1952) Year: 1990
Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 22 Requires some sharing Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum Tom tom Cymbals: suspended Tam tam Triangle <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to scratch the rim of a tam tam with a triangle beater • <i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Crotales <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
Effect Instruments? Yes Bamboo wind chimes Lion's roar Sand blocks Wood wind chimes <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum most likely needed • <i>Does it Require Extensive Tuning?</i> No

<ul style="list-style-type: none"> •<i>Would Tuning Gauges Be Necessary?</i> Yes Only because of all the glissandi •<i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th) •<i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Claves Cabasa Maracas</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Gong (unpitched)</p>
<p>“Found” Instruments? Yes</p> <p>Metal plate</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: Orion</p> <p>Composer: Kaija Saariaho (b. 1952)</p> <p>Year: 2002</p>
<p>Number of Players Called For: 4 Percussionists, 2 Timpanists</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 35</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum</p> <p>Tom toms</p> <p>Cymbals: suspended, Chinese</p> <p>Tam tam</p> <p>Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Xylophone</p> <p>Glockenspiel</p> <p>Marimba</p> <p>Chimes</p> <p>Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to bow vibraphone Indication to bow crotales • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p> <p>Shell chimes</p> <p>Bell chimes (wind chimes)</p> <p>Glass wind chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> Yes Requires 2 sets of timpani • <i>Does it Require Extensive Tuning?</i> No

<p>Requires moderate tuning, but a lot of glissando</p> <ul style="list-style-type: none"> •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> F-B (augmented 11th) Timpani I: F- F# (augmented 8th) Timpani II: B-B (8th) •<i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Small bell Bowl gongs Thunderstick (bull roarer)
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Insomnia Composer: Esa-Pekka Salonen (b. 1958) Year: 2002</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 43 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum Tom toms Cymbals: suspended Tam tams Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bass drum with wooden beaters Indication to play suspended cymbal with brushes Indication to play tam tam with brushes • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiels Marimba Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on vibraphone Glissando on marimba • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Log drums Mark tree</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum probably required for the high notes • <i>Does it Require Extensive Tuning?</i> Yes

<ul style="list-style-type: none"> •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> C-Bb (minor 14th) •<i>Solo Passages?</i> No
<p>Standard Latin Battery? Yes</p> <p>Congas</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Rototoms Tuned gongs Chinese gong</p>
<p>“Found” Instruments? No</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

Piece: Cello Concerto No. 2 Composer: Alfred Schnittke (1934-1998) Year: 1990
Number of Players Called For: 6 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 17 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended, crash cymbals Tam tams <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimba Chimes Crotales <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on vibes Glissando on chimes • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> No
Effect Instruments? Yes Flexatone <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No 5 drums would make the part easier, but is not necessary • <i>Does it Require Extensive Tuning?</i> Yes Quite of a bit of chromatic tuning • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C#-A (minor 13th)

The A is the highest written pitch, but it is glissing upwards •Solo Passages? No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Gongs
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Concerto for Viola and Orchestra Composer: Alfred Schnittke (1934-1998) Year: 1985
Number of Players Called For: 6 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 13 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum/attachment, tamburo Cymbals: attachment Tam tams <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Bass drum with cymbal attachment • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Chimes <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on vibraphone • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? Yes Flexatone <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> E-E (8th) • <i>Solo Passages?</i> No
Standard Latin Battery? No

Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Four Soundscapes for Orchestra Composer: Gunther Schuller (b. 1925) Year: 1975</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 17 Trap set counts as one instrument Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum Cymbals: suspended, crash Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indications to play snare drum with brushes and with heavy triangle beaters on the rim Snare drum could be played offstage at conductor's discretion Indication to play suspended cymbal with brushes, light triangle beaters, and wood sticks Indication to scrape suspended cymbal with triangle beater Indication to scrape gong • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimba</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to play glockenspiel with metal mallets, hard rubber, medium rubber, and hard heavy sticks 3-note chords on chimes • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Woodblock</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Slide whistle must be played offstage Indication to play woodblock with the thick end of a snare drum stick and the light of end of a snare drum stick • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No

<ul style="list-style-type: none"> •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No Requires moderate tuning •<i>Would Tuning Gauges Be Necessary?</i> Yes On some occasions the timpanist would not have time to retune by ear •<i>What is the Range of Tunings Required Throughout the Piece?</i> D-G (11th) •<i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Concerto for Percussion and Orchestra Composer: Joseph Schwantner (b. 1943) Year: 1994</p>
<p>Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 31 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tom toms Cymbals: suspended Tam tam Triangles</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication for rim shot on tom tom • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Mark tree Bell tree Anvil</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> D-B (13th)

• <i>Solo Passages?</i> Yes
Standard Latin Battery? Yes Timbales Maracas Claves • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? Yes Japanese wind chimes
“Found” Instruments? Yes Brake drums
Does the Section Operate as a Percussion Ensemble? No
General Comments: • As with the other concertos, only the percussion part in the orchestra will be examined

<p>Piece: A Play of Shadows...</p> <p>Composer: Joseph Schwantner (b. 1943)</p> <p>Year: 1990</p>
<p>Number of Players Called For: 3 Percussionists No Timpani</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 27 Requires some sharing</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum Tom toms Cymbals: suspended Tam tam Triangle</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play with wooden mallets on bass drum Indication to play suspended cymbal with triangle beater •<i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone Xylophone Glockenspiel Marimba Crotales</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Indication to bow vibraphone •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p> <p>Temple blocks Bell tree</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
<p>Timpani No</p>
<p>Standard Latin Battery? Yes</p> <p>Timbales Claves</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No

Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Concerto for Violin, Cello and Orchestra Composer: Roger Sessions (1896-1985) Year: 1971
Number of Players Called For: 5-6 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 19 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum, snare drum Chinese drum (tom tom) Cymbals: crash, suspended Tam-tam Tambourine Triangle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No
Effect Instruments? Yes Woodblock Whip <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No Requires moderate tuning •<i>Would Tuning Gauges Be Necessary?</i> Yes A few places do not leave adequate time for the timpanist to retune by ear •<i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-G (10th)

• <i>Solo Passages?</i> No
Standard Latin Battery? Yes Maracas Claves • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? Yes Tambourin provençale
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Symphony no. 6 Composer: Roger Sessions (1896-1985) Year: 1966</p>
<p>Number of Players Called For: 7-8 Percussionists, 1 Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 21 Setup Diagram Included? No Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, military drum, tenor drum Chinese drum (tom tom) Cymbals: suspended, crash Tam tams Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Xylophone Marimba</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes This part is borderline hard, slightly beyond average sight reading skills, but not requiring memorization • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Whip</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No Moderate tuning required • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> Eb-G (Major 10th)

• <i>Solo Passages?</i> No
Standard Latin Battery? Yes Maracas Claves Guiro • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? Yes Tambour de Provence
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Old Russian Circus Music: Concerto No. 3 for Orchestra Composer: Rodion Shchedrin (b. 1932) Year: 1990</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 44 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, tamburo Tom toms Cymbals: hi-hats, crash, suspended Tam tam</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play tamburos on the rim Indication to play tom tom with a xylophone mallet, and on the rim Indication to play hi-hat with triangle beater Indication to hit suspended cymbal with metal beater Indication to play tam tam with 2 triangle beaters •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Glockenspiel Crotales Bell plate</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Glissando on glockenspiel Indication to play crotales with a triangle beater Indication to play bell plate with triangle beater •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> No
<p>Effect Instruments? Yes Whistle Sleigh bells Temple blocks Flexatone Glass wind chimes</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes 3 note chord on timpani played by one player Glissando from a high Bb to a low D (basically throughout the entire range of all 4

<p>drums)</p> <ul style="list-style-type: none"> •Are More Than 4 Drums Required? No •Does it Require Extensive Tuning? No •Would Tuning Gauges Be Necessary? No •What is the Range of Tunings Required Throughout the Piece? D-Bb (minor 13th) •Solo Passages? Yes
<p>Standard Latin Battery? Yes Choclo (metal tube shaker) Guiros Claves Bongos Maracas</p> <ul style="list-style-type: none"> •Unusual or Extended Techniques? Yes Indication to play bongos with fingers, and with xylophone mallet •Solo Passages? Yes
<p>Other Ethnic or Unusual Instruments? Yes Cup bell (temple bowl)</p>
<p>“Found” Instruments? Yes Birds singing</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

<p>Piece: "Roundelays": 4th Concerto for Orchestra Composer: Rodion Shchedrin (b. 1932) Year: 1989</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Timpanist must also play a piccolo whistle Number of Individual Instruments Required (Timpani Considered 1 Instrument): 64 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, military drums, tenor drum Tambourine</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play in 2 different spots on the drum Indication to play drums on the hoop (rim) • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Marimba Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on marimba Indication to play crotales with metal mallets Indication to play vibraphone with metal mallets • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes Cowbells (pitched) Wind chimes (regular, bamboo, glass) Sleigh bells Piccolo whistle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No

<ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> F-A (10th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Guiro Choclo (metal tube shaker) Bongos Maracas</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bongos with fingers, and with a stick • <i>Solo Passages?</i> Yes
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Gongs (pitched) Cup bells (temple bells) Russian spoons (can be substituted with Claves)</p>
<p>“Found” Instruments? Yes</p> <p>Champagne glasses</p>
<p>Does the Section Operate as a Percussion Ensemble? No</p>

Piece: Michael's Greeting Composer: Karlheinz Stockhausen (1928-2007) Year: 1978
Number of Players Called For: 3 Percussionists No Timpani Number of Individual Instruments Required (Timpani Considered 1 Instrument): 8 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Tam tam <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? No
Timpani No
Standard Latin Battery? Yes Congas <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes The congas are pitched at Eb and A Indication to play conga with hands and fingers • <i>Solo Passages?</i> No
Other Ethnic or Unusual Instruments? Yes Keisu (Japanese temple instrument, also called a Dobači) 2 pitched gongs (A and C#) Geisha bell (played from the back with a bone mallet)
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • Stockhausen recommends very specific mallets. For the vibraphone he recommends the Musser 221 "Gary Burton" mallets.

<p>Piece: Concerto No. 2 for Orchestra Composer: Steven Stucky (b. 1949) Year: 2003</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 25 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, tamburo piccolo Tom toms Cymbals: Chinese cymbal, suspended Tam tam Tambourine Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication for rim shot on piccolo snare drum Indication to hit tambourine with wooden stick • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Whip Woodblocks Latin-American cowbells Anvil</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes (Latin American cowbells)
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play with wooden sticks, and with snare drum sticks • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No

<ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> D-A (12th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play bongos with wooden stick • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Flow From Me What You Call Time Composer: Toru Takemitsu (1930-1996) Year: 1990</p>
<p>Number of Players Called For: 5 Percussionists (solo) No Timpanist, Percussion player 2 utilizes one timpano and player 5 uses 2 timpani. Number of Individual Instruments Required (Timpani Considered 1 Instrument): 81 Setup Diagram Included? Yes Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Tom toms Cymbals: suspended, Chinese Tam tams •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes</p>
<p>Standard Mallet Battery? Yes Vibraphone Glockenspiel Marimba Crotales •<i>Unusual or Extended Technique?</i> Yes Indication to play vibraphone with hard, plastic mallet Indication to play crotales with irregular oscillation •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes</p>
<p>Effect Instruments? Yes Almglocken Log drums Rain stick •<i>Unusual or Extended Techniques?</i> Yes Indication to play almglocken with hard mallets •<i>Solo Passages?</i> Yes</p>
<p>Timpani •<i>Unusual or Extended Techniques?</i> Yes Japanese Temple Bowls are placed on timpani to play Glissando •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No</p>

<ul style="list-style-type: none"> • <i>What is the Range of Tunings Required Throughout the Piece?</i> N/A • <i>Solo Passages?</i> Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Steel drum (double lead pans) Pakistan Noah bells Thai gongs Japanese temple bowls Chinese winter gongs Anklung Arabic or Turkish drum (darabuka) High pitched small bells
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes Mallet ensemble and Percussion ensemble
General Comments: <ul style="list-style-type: none"> • Members of the percussion group, Nexus, premiered this piece as also helped to revise the original score. • Note about the Darabuka: “This instrument should be hung from the shoulder and held under the arm. It is beaten with the palm of the hand or with a stick. Although a deep sound is desirable, the instrument needs not to be large. Choose an instrument which balances well with the Tom-tom. If possible, use an instrument capable of more than two different pitches created by beater technique or tightening of the cylinder. • Other notes to the percussionists: <ol style="list-style-type: none"> 1) The 1st, 4th and 5th soloists enter from the regular stage entrance. The 2nd and 3rd soloists enter from the rear doors of the auditorium. All soloists enter with a ceremonial attitude, ringing the set of crotales assigned to them. They should reach their designated places by practice letter “B” (in about one minute and 20 seconds) and stop playing the crotales. 2) In addition to the instruments assigned to each player, a variety of wind chimes with high pitch and clear sound are required. The chimes should be hung on long ribbons of red, blue, green, yellow and white. One end of the ribbons should reach the 2nd and 3rd soloists on the stage. The 2nd and 3rd soloists ring the chimes with the ribbons. 3) Specifications for the mallets or sticks are just the composer’s suggestions. Soloists are expected to use their own judgment in selecting them, taking the utmost care to create a variety of colors and diversity of sonority. It should be noted that the same care should be taken for the orchestra. 4) All soloists should listen carefully to each other during the playing of those parts which were composed to create an impression of fluidity and improvised playing – like those at practice letter “M”, “N”, “P”, etc. Soloists should develop the best pattern during rehearsals for the performance. 5) The playing of the 2nd and 3rd soloists at practice letter “Y”, as well as at the improvised/optional middle part, should demonstrate a conversational relationship between the two soloists. Again, an ideal performance may be created after many trials during rehearsals. At the concert, however, the performance should give the impression of complete improvisation. Moments of silence are also a very important part of the performance during the improvisation.

6) Dress simply, in plain-colored (black or white) linen or cotton Nehru shirts with simple pants and sandals or sneakers. All soloists should dress uniformly. Handkerchiefs of designated colors (white for 1st, blue for 2nd, yellow for 3rd, red for 4th and green for 5th) should be showing from the shirt pockets.

- Improvisation is an integral part of this piece

Piece: Twill by Twilight Composer: Toru Takemitsu (1930-1996) Year: 1988
Number of Players Called For: 5 Percussionists No timpani; percussion player 4 uses one timpano Number of Individual Instruments Required (Timpani Considered 1 Instrument): 21 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended Tam tams <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Cymbal to be placed on timpani head and rolled while timpani glissandos • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes Crotales <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to play vibraphone with xylophone stick Glissando on vibraphone Glissando on crotales • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Glissando; inverted cymbal placed on timpani head and rolled • <i>Are More Than 4 Drums Required?</i> No • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> Optional • <i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No

“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

Piece: Piano Concerto No. 5, Op. 96 Composer: Alexander Tcherepnin (1899-1977) Year: 1963
Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 11 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum, military drum, tenor drum Cymbals Tam tam Triangle <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Xylophone Chimes <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> No •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> N/A •<i>Solo Passages?</i> No
Effect Instruments? Yes Castanets Woodblock <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No •<i>What is the Range of Tunings Required Throughout the Piece?</i> F-F# (augmented 8th) •<i>Solo Passages?</i> Yes 3rd movement m. 479-480 and m. 547-549 Solo passages are very brief
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No

“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none">•The chime part requires notes that are rather low and might be outside of a typical chime range: notes below middle C include: F, Ab and Bb

Piece: The Rose Lake Composer: Michael Tippett (1905-1988) Year: 1991-93
Number of Players Called For: 7-8 Percussionists No timpani Carroll calls for 7 percussionists, Cervenka calls for 8 percussionists Number of Individual Instruments Required (Timpani Considered 1 Instrument): 15 Setup Diagram Included? No Multi-Percussion Required? Yes One player is playing a roto-tom part which involves multiple drums
Standard Percussion Battery? Yes Drums: bass drum, side drum Cymbals: suspended Tam tams <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Glissando on marimba • <i>4-Mallet Technique?</i> No • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
Effect Instruments? Yes Castanets <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> No
Timpani No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? Yes Pitched gong (Ab) Roto toms
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes This piece has a mallet ensemble
General Comments: <ul style="list-style-type: none"> • This piece has quite an involved roto-tom part; the roto-tom is featured almost as a soloist throughout much of the piece

<p>Piece: Symphony No. 4 Composer: Michael Tippett (1905-1998) Year: 1976-77</p>
<p>Number of Players Called For: 4-7 Percussionists, 1 Timpanist Tippett recommends 4 percussionists in his score, however Carroll recommends 6 and Cervenka recommends 7 Number of Individual Instruments Required (Timpani Considered 1 Instrument): 18 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, side drum, tenor drum Tom tom Cymbals: crash, suspended •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes</p>
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes •<i>Unusual or Extended Technique?</i> Yes Glissando on xylophone and marimba •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes</p>
<p>Effect Instruments? Yes Wooden wind chimes Wind machine Woodblock •<i>Unusual or Extended Techniques?</i> No •<i>Solo Passages?</i> Yes</p>
<p>Timpani •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> No •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> No •<i>What is the Range of Tunings Required Throughout the Piece?</i> F-A (10th)</p>

• <i>Solo Passages?</i> Yes
Standard Latin Battery? Yes Maracas Claves • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: • Tippett writes of the mallet instruments, “Of the keyboard instruments, the glockenspiel, xylophone, vibraphone, and marimba, are regarded as generally equal to each other in both <i>p</i> and <i>f</i> . This probably implies at times a moderation of the xylophone.”

<p>Piece: Sequoia</p> <p>Composer: Joan Tower (b. 1938)</p> <p>Year: 1981</p>
<p>Number of Players Called For: 5 Percussionists, 1 Timpanist Tower recommends 5 percussionists with percussion 5 playing timpani, however Raynor Carroll recommends 5 percussionists plus a timpanist</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 52</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, snare drum, tenor drum Tom toms Cymbals: suspended Tam tam Triangles</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indication to play snare drum with snares off Tower provides sticking for snare drum, tom tom, and tenor drum Indication to play tenor drum with snares on Indication for soft tick on tenor drum Indication for hard stick on suspended cymbal •<i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> Yes Glissando on glockenspiel, xylophone, and vibes •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes •<i>Difficult Pedaling Technique Involved?</i> Yes •<i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes</p> <p>Cowbells Temple blocks</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Indicates stickings for some temple block parts •<i>Solo Passages?</i> Yes
<p>Timpani</p> <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes

<p>Sticking provided for some timpani parts Indication to play timpani with hard stick</p> <ul style="list-style-type: none"> •<i>Are More Than 4 Drums Required?</i> Yes Tower calls for 5 timpani •<i>Does it Require Extensive Tuning?</i> Yes •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> G-Bb (minor 10th) •<i>Solo Passages?</i> No
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
<p>Does the Section Operate as a Percussion Ensemble? No</p> <p>This piece begins with a percussion introduction, and the first several measures are percussion section solos alternating with the rest of the orchestra, however it is not percussion ensemble due to the lack of rhythmic interplay between the parts of the percussion section.</p>

<p>Piece: Silver Ladders Composer: Joan Tower (b. 1938) Year: 1986</p>
<p>Number of Players Called For: 4 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 42 Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum, snare drum, tenor drum Tom toms Cymbals: suspended Tam toms Triangle</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication for soft stick on tenor drum Indication to play tom toms with soft stick Indication for hard stick on cymbal, and metal beater played on bell • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication for soft mallet on glock • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Woodblocks Temple blocks</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play temple blocks with soft sticks • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> Yes Piccolo drum needed 5 drums would probably be ideal

<ul style="list-style-type: none">•<i>Does it Require Extensive Tuning?</i> Yes This is quite a chromatic part•<i>Would Tuning Gauges Be Necessary?</i> Yes•<i>What is the Range of Tunings Required Throughout the Piece?</i> E-B (12th)•<i>Solo Passages?</i> Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No

<p>Piece: Your Rockaby (Concerto for Soprano Saxophone and Orchestra)</p> <p>Composer: Mark-Anthony Turnage (b. 1960)</p> <p>Year: 1992-93</p>
<p>Number of Players Called For: 5 Percussionists and Cymbalom player who doubles on large ratchet. No Timpani</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 25</p> <p>Setup Diagram Included? No</p> <p>Multi-Percussion Required? No</p>
<p>Standard Percussion Battery? Yes</p> <p>Drums: bass drum, pedal bass drum</p> <p>Cymbals: sizzle</p> <p>Tam tam</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Pedal bass drum required Sizzle cymbal required, indication to play with hard sticks • <i>Solo Passages?</i> No
<p>Standard Mallet Battery? Yes</p> <p>Vibraphone</p> <p>Xylophone</p> <p>Marimba</p> <p>Chimes</p> <p>Crotales</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to bow crotales • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> No
<p>Effect Instruments? Yes</p> <p>Whip</p> <p>Tuned cowbells</p> <p>Woodblock</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play tuned cowbells with hard stick • <i>Solo Passages?</i> No
<p>Timpani No</p>
<p>Standard Latin Battery? No</p>
<p>Other Ethnic or Unusual Instruments? Yes</p> <p>Hand bells</p> <p>2 Bodhràn</p> <p>Djembe</p> <p>2 Darabuka (2 large bongos can be substituted)</p>

“Found” Instruments? Yes

Large Saucepan

Brake drum

Does the Section Operate as a Percussion Ensemble? No
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<p>Piece: Movers and Shakers Composer: Charles Wuorinen (b. 1938) Year: 1984</p>
<p>Number of Players Called For: 6-7 Percussionists, 1 Timpanist Carroll calls for 6 percussionists with percussionist 5 playing timpani II and percussionist 6 playing timpani III; Cervenka calls for 7 percussionists with percussionist 6 playing timpani II and percussionist 7 playing timpani III.</p> <p>Number of Individual Instruments Required (Timpani Considered 1 Instrument): 32 Requires some sharing</p> <p>Setup Diagram Included? No Multi-Percussion Required? Yes</p>
<p>Standard Percussion Battery? Yes Drums: bass drum Tom toms</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
<p>Standard Mallet Battery? Yes Vibraphone Xylophone Glockenspiel Marimba Chimes</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> Yes Indication to hand dampen on the vibraphone • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> Yes • <i>Difficult Pedaling Technique Involved?</i> Yes • <i>Solo Passages?</i> Yes
<p>Effect Instruments? Yes Almglocken</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No 6 almglocken (unidentified pitches) • <i>Solo Passages?</i> No
<p>Timpani</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Timpani coperti • <i>Are More Than 4 Drums Required?</i> Yes 1 timpani plus 2 percussionists also playing timpani are needed Needs at least 5 drums • <i>Does it Require Extensive Tuning?</i> Yes

<ul style="list-style-type: none"> • <i>Would Tuning Gauges Be Necessary?</i> Yes • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-B (14th) • <i>Solo Passages?</i> Yes
<p>Standard Latin Battery? Yes</p> <p>Bongos</p> <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Solo Passages?</i> Yes
Other Ethnic or Unusual Instruments? No
“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? Yes
<p>General Comments:</p> <ul style="list-style-type: none"> • Percussion part is extremely involved

Piece: Symphony No. 3 Composer: Ellen Taaffe Zwilich (b. 1939) Year: 1992
Number of Players Called For: 2-3 Percussionists, 1 Timpanist Zwilich writes that this piece can use 2-3 percussionists, both Carroll and Cervenka recommend 3 percussionists Number of Individual Instruments Required (Timpani Considered 1 Instrument): 17 Setup Diagram Included? No Multi-Percussion Required? Yes (drumset part)
Standard Percussion Battery? Yes Drums: pedal bass drums, bass drums Cymbals: suspended, sizzle cymbal, hi-hat Tam tams Tambourine <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> Yes Pedal bass drum required Indication for dampened bass drum Sizzle cymbal required •<i>Solo Passages?</i> No
Standard Mallet Battery? Yes Vibraphone Xylophone <ul style="list-style-type: none"> •<i>Unusual or Extended Technique?</i> No •<i>4-Mallet Technique?</i> Yes •<i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No •<i>Difficult Pedaling Technique Involved?</i> No •<i>Solo Passages?</i> No
Effect Instruments? No
Timpani <ul style="list-style-type: none"> •<i>Unusual or Extended Techniques?</i> No •<i>Are More Than 4 Drums Required?</i> Yes Piccolo drum probably necessary (it is possible that this piece could be done with 4 drums, but the highest note, Bb, would be very high in a 23" drum range) •<i>Does it Require Extensive Tuning?</i> No •<i>Would Tuning Gauges Be Necessary?</i> Yes •<i>What is the Range of Tunings Required Throughout the Piece?</i> D-Bb (minor 13th) •<i>Solo Passages?</i> Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No

“Found” Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none">• This piece requires a drumset including high sizzle cymbal, small suspended cymbal, small muted suspended cymbal, hi-hat cymbals, 2 pedal bass drums)

Piece: Symphony No. 4 Composer: Ellen Taaffe Zwilich (b. 1939) Year: 1999
Number of Players Called For: 3 Percussionists, 1 Timpanist Number of Individual Instruments Required (Timpani Considered 1 Instrument): 15 Setup Diagram Included? No Multi-Percussion Required? No
Standard Percussion Battery? Yes Drums: bass drum Cymbals: suspended, sizzle, hi-hat, splash Tam tams <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> Yes Indication to play suspended cymbal with stick (drumstick?) • <i>Solo Passages?</i> Yes
Standard Mallet Battery? Yes Vibraphone Glockenspiel Chimes (extended range, up to A) <ul style="list-style-type: none"> • <i>Unusual or Extended Technique?</i> No • <i>4-Mallet Technique?</i> Yes • <i>Are the Parts Difficult (beyond sight-reading capability or requiring memorization)?</i> No • <i>Difficult Pedaling Technique Involved?</i> No • <i>Solo Passages?</i> No
Effect Instruments? No
Timpani <ul style="list-style-type: none"> • <i>Unusual or Extended Techniques?</i> No • <i>Are More Than 4 Drums Required?</i> No More than 4 drums wouldn't be necessary as long as one of the drums is a piccolo drum • <i>Does it Require Extensive Tuning?</i> No • <i>Would Tuning Gauges Be Necessary?</i> No • <i>What is the Range of Tunings Required Throughout the Piece?</i> C-C (15th) • <i>Solo Passages?</i> Yes
Standard Latin Battery? No
Other Ethnic or Unusual Instruments? No
"Found" Instruments? No
Does the Section Operate as a Percussion Ensemble? No
General Comments: <ul style="list-style-type: none"> • A children's choir also plays handbells

Appendix B

SPECIAL TECHNIQUES AND REQUESTS

General Requests of the Percussion Section

Alternative options for prescribed instrumentation suggested:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
 William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Steve Reich (b. 1936), *Tehillim* (1981)
 Lou Harrison (1917-2003), *Symphony No. 4* (1990)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Percussionists must walk or move during performance:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Percussionists must speak, shout, or whisper:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Tan Dun (b. 1957), *Death and Fire* (1992)

Specific brand, manufacturer, or model number of stick preference indicated:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
 Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)
 Steve Reich (b. 1936), *Tehillim* (1981)

Location for rental of unusual instruments provided:

David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)

Photograph of a specific type of instrument provided:

Steve Reich (b. 1936), *Tehillim* (1981)

Composer instructs percussionists on what to wear during performance:

Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Offstage playing:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
 Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)

The Standard Percussion Battery

Number of pieces that use any instrument from the standard percussion battery: 86 of 87

Pieces with no standard percussion battery:

*Györgi Ligeti (1923-2006), *Atmosphères* (1961)*

Number of pieces that use an instrument from the standard percussion battery in a solo moment: 48

Bass Drum

Different types of bass drum setups:

Bass drum with attached cymbal:

Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Alfred Schnittke (1934-1998), *Concerto for Viola and Orchestra* (1985)
 Hans Werner Henze (b. 1926), *Symphony No. 6* (1995-97)

Pedal bass drum:

Henri Dutilleux (b. 1916), *Métaboles* (1965)
 John Adams (b. 1947), *The Chairman Dances* (1985)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 3* (1992)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Henry Brant (1913-2008), *Ice Field* (2001)

Unusual ways of playing the bass drum:

Muting or dampening the bass drum:

William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)
 Steve Reich (b. 1936), *The Desert Music* (1984)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 3* (1992)

Hit bass drum on shell:

Thomas Adès (b. 1971), *Asyla* (1997)

Play the bass drum at the rim:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Play bass with pitch contour:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Play on both sides of the bass drum:

William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)

Unusual stick requests of the bass drum:

Snare drum sticks or a wood stick on bass drum:

Benjamin Britten (1913-1976), *War Requiem* (1961)
 Leonard Bernstein (1918-1990), *Chichester Psalms* (1965)
 Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Joseph Schwantner (b. 1943), *A Play of Shadows...* (1990)
 Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)

Timpani stick on bass drum:

Walter Piston (1894-1976), *Symphony No. 7* (1960)

Hard rubber mallets on bass drum:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Hands or fingers on bass drum:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967); as per performer discretion

Wire brushes on bass drum:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Hammers on bass drum:

Morton Gould (1913-1996), *Symphony of Spirituals* (1975)

Drums

Unusual ways of playing the drums:

Drum with snares off:

Benjamin Britten (1913-1976), *War Requiem* (1961)
 Leonard Bernstein (1918-1990), *Symphony No. 3, "Kaddish"* (1961-63)
 William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)
 Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Vincent Persichetti (1915-1987), *Night Dances* (1970)
 Harrison Birtwistle (b. 1934), *The Triumph of Time* (1972)
 Samuel Barber (1910-1981), *Third Essay for Orchestra* (1978)
 Pierre Boulez (b. 1925), *Notations* (1978)
 John Corigliano (b. 1938), *Gazebo Dances* (1980-81)
 Joan Tower (b. 1938), *Sequoia* (1981)
 Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)
 Györgi Kurtág (b. 1926), *...Quasi Una Fantasia...* (1988)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Rim shot:

Leonard Bernstein (1918-1990), *Symphony No. 3, "Kaddish"* (1961-63)
 Leonard Bernstein (1918-1990), *Chichester Psalms* (1965)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)
 John Corigliano (b. 1938), *Gazebo Dances* (1980-81)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Henry Brant (1913-2008), *Ice Field* (2001)
 Steven Stucky (b. 1949), *Concerto No. 2 for Orchestra* (2003)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Play or hit rim of drum:

Leonard Bernstein (1918-1990), *Symphony No. 3, "Kaddish"* (1961-63)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)
 Vincent Persichetti (1915-1987), *Night Dances* (1970)
 Morton Gould (1913-1996), *Symphony of Spirituals* (1975)
 Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
 Pierre Boulez (b. 1925), *Notations* (1978)
 John Harbison (b. 1938), *Symphony No. 1* (1980-81)
 Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Rodion Shchedrin (b. 1932), *"Roundelays," 4th Concerto for Orchestra* (1989)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Play on different parts of the drum head (center or edge):

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Luciano Berio (1925-2003), *Sinfonia* (1968)
 Rodion Shchedrin (b. 1932), "Roundelays," 4th *Concerto for Orchestra* (1989)

Let the stick rebound freely on head:

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Lay on drumstick on head and hit the other drumstick against it:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Tune drum to specific pitches:

John Harbison (b. 1938), *Symphony No. 1* (1980-81)

Offstage drum:

Gunther Schuller (b. 1925). *Four Soundscapes for Orchestra* (1975)

Drum sticking provided by composer:

Joan Tower (b. 1938), *Sequoia* (1981)

Instructions to dampen drum:

Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Roll on handkerchief:

Samuel Barber (1910-1981), *Andromache's Farewell* (1962)

Dampen drum with newspaper:

John Adams (b. 1947), *The Chairman Dances* (1985)

Unusual stick requests for the drums:

Wire brushes on drum:

Leonard Bernstein (1918-1990), *Symphony No. 3, "Kaddish"* (1961-63)

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)

Luciano Berio (1925-2003), *Sinfonia* (1968)

Vincent Persichetti (1915-1987), *Night Dances* (1970)

Morton Gould (1913-1996), *Symphony of Spirituals* (1975)

Gunther Schuller (b. 1925). *Four Soundscapes for Orchestra* (1975)

William Kraft (b. 1923), *Interplay* (1982; revised 1984)

John Adams (b. 1947), *The Chairman Dances* (1985)

Thomas Adès (b. 1971), *Asyla* (1997)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Felt sticks or timpani sticks on drum:

Benjamin Britten (1913-1976), *War Requiem* (1961)

Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)

Joan Tower (b. 1938), *Sequoia* (1981)

Joan Tower (b. 1938), *Silver Ladders* (1986)

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Yarn mallets on drum:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Pottery mallets on drum:

William Kraft (b. 1923), *Interplay* (1982; revised 1984)

Hands or fingers on drum:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Rute on drum:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Butt of stick on drum:

Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)

Hit snare drum sticks together:

Thomas Adès (b. 1971), *Asyla* (1997)

Tom toms

Number of pieces that require tom toms: 41 out of 87

Unusual ways of playing the tom toms:

Let stick rebound freely on head of tom tom:

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Play on different parts of tom tom head (center or edge):

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Play on the rim of the tom tom:

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Lay on drumstick on tom tom head and hit the other drumstick against it:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Rim shot on tom tom:

Joseph Schwantner (b. 1943), *Concerto for Percussion and Orchestra* (1994)

Sticking provided by composer:

Joan Tower (b. 1938), *Sequoia* (1981)

Unusual stick requests for the tom toms:

Xylophone mallets on tom toms:

Pierre Boulez (b. 1925), *Notations* (1978)

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Timpani or felt mallets on tom toms:

Pierre Boulez (b. 1925), *Notations* (1978)

Jacob Druckman (1928-1996), *Aureole* (1979)

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Joan Tower (b. 1938), *Silver Ladders* (1986)

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Yarn mallets on tom toms:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Bernard Rands (b. 1934), *...Body and Shadow...* (1988)

Wire brushes on tom toms:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Morton Gould (1913-1996), *Symphony of Spirituals* (1975)

Jacob Druckman (1928-1996), *Aureole* (1979)

Christopher Rouse (b. 1949), *Gorgon* (1984)

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Fingers on tom toms:

Tan Dun (b. 1957), *Death and Fire* (1992)

Rub tom tom head with superball:

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Rub tom tom head with the palm of the hand:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Cymbals

Different types of cymbals requested:

Hi-Hat cymbals:

David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 John Adams (b. 1947), *The Chairman Dances* (1985)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 3* (1992)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999)
 Henry Brant (1913-2008), *Ice Field* (2001)

Sizzle Cymbals:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)
 William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Jacob Druckman (1928-1996), *Prism* (1980)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 John Adams (b. 1947), *The Chairman Dances* (1985)
 John Harbison (b. 1938), *Symphony No. 2* (1986-87)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 3* (1992)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)
 Thomas Adès (b. 1971), *Asyla* (1997)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Chinese cymbals:

Henri Dutilleux (b. 1916), *Métaboles* (1965)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Tan Dun (b. 1957), *Death and Fire* (1992)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99)
 Kaija Saariaho (b. 1952), *Orion* (2002)
 Steven Stucky (b. 1949), *Concerto No. 2 for Orchestra* (2003)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Small choke cymbal (splash cymbal):

Thomas Adès (b. 1971), *Asyla* (1997)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999)

Unusual methods of playing the cymbal:

Bow the cymbal:

- Magnus Lindberg (b. 1958), *Kraft* (1983-85)
- Thomas Adès (b. 1971), *Asyla* (1997)
- Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)

Place cymbal on timpani and bow cymbal:

- Tan Dun (b. 1957), *Death and Fire* (1992)

Place cymbal on timpani head and roll with timpani glissandos:

- Toru Takemitsu (1930-1996), *Twill By Twilight* (1988)

Rotate or roll crash cymbal against one another:

- William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)
- Thomas Adès (b. 1971), *Asyla* (1997)

Apply a coin or metal implement to the vibrating rim of the cymbal:

- George Crumb (b. 1929), *Echoes of Time and the River* (1967)
- Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)

Unusual stick requests for the cymbals:

Wire Brushes on cymbal:

- Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
- Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
- Leonard Bernstein (1918-2000), *Symphony No. 3, "Kaddish"* (1961-63)
- Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)
- Donald Erb (b. 1927), *The Seventh Trumpet* (1969)
- Vincent Persichetti (1915-1987), *Night Dances* (1970)
- Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
- Magnus Lindberg (b. 1958), *Kraft* (1983-85)
- John Adams (b. 1947), *The Chairman Dances* (1985)
- John Harbison (b. 1938), *Symphony No. 2* (1986-87)
- Thomas Adès (b. 1971), *Asyla* (1997)
- Magnus Lindberg (b. 1958), *Cantigas* (1998-99)
- Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)

Metal triangle beater or metal mallets on cymbal:

- Leonard Bernstein (1918-2000), *Symphony No. 3, "Kaddish"* (1961-63)
- Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
- Pierre Boulez (b. 1925), *Notations* (1978)
- Andrzej Panufnik (1914-1991), *Sinfonia Votiva (Symphony No. 8)* (1980-81)
- William Kraft (b. 1923), *Interplay* (1982; revised 1984)
- Magnus Lindberg (b. 1958), *Kraft* (1983-85)
- Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
- Joan Tower (b. 1938), *Silver Ladders* (1986)
- Györgi Kurtág (b. 1926), *... Quasi Una Fantasia...* (1988)
- Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Joseph Schwantner (b. 1943), *A Play of Shadows...* (1990)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)

Wooden stick or snare drum stick on cymbal:

Karel Hüsa (b. 1921), *Mosaiques* (1960)
 Benjamin Britten (1913-1976), *War Requiem* (1961)
 Leonard Bernstein (1918-2000), *Symphony No. 3, "Kaddish"* (1961-63)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Vincent Persichetti (1915-1987), *Night Dances* (1970)
 Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)
 Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
 Pierre Boulez (b. 1925), *Notations* (1978)
 John Harbison (b. 1938), *Symphony No. 1* (1980-81)
 Andrzej Panufnik (1914-1991), *Sinfonia Votiva (Symphony No. 8)* (1980-81)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Olivier Knussen (b. 1952), *Flourish With Fireworks* (1988)
 Lou Harrison (1917-2003), *Symphony No. 4* (1990)
 Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)
 Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999)
 Henry Brant (1913-2008), *Ice Field* (2001)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Rubber mallet on cymbal:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Hands or fingers on cymbal:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)
 Tan Dun (b. 1957), *Death and Fire* (1992)

Scraping or glissing on the cymbal:

Serrated rod scraped on edge of cymbal:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Cymbal scraped with a triangle beater:

Karel Hüsa (b. 1921), *Mosaiques* (1960)
 George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Morton Gould (1913-1996), *Symphony of Spirituals* (1975)
 Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)
 John Adams (b. 1947), *The Chairman Dances* (1985)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Cymbal scraped with a coin:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Tam tams

Unusual methods of playing the tam tam:

Play on the edge or rim of tam tam:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Kaija Saariaho (b. 1952), *A la Fumée* (1990)

Apply a coin or metal to the rim of vibrating tam tam:

George Crumb (b. 1929), *Echoes of Time and the River* (1967): says to apply coin
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99): says to apply triangle

Hit the tam tam with a triangle:

Pierre Boulez (b. 1925), *Notations* (1978)

Rub sandpaper around the rim of the tam tam:

Thomas Adès (b. 1971), *Asyla* (1997)

Lay tam tam flat on clothe or foam rubber:

Pierre Boulez (b. 1925), *Notations* (1978)

Lay tam tam on bass drum:

Henry Brant (1913-2008), *Ice Field* (2001)

Unusual stick requests for the tam tams:

Wood beater or snare drum sticks on tam tam:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Thomas Adès (b. 1971), *Asyla* (1997)

Vibraphone mallet on tam tam:

Thomas Adès (b. 1971), *Asyla* (1997)

Timpani stick on tam tam:

Walter Piston (1894-1976), *Symphony No. 7* (1960)

Metal stick or triangle beater on the tam tam:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Jacob Druckman (1928-1996), *Prism* (1980)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra*
 (1990)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Wire brushes on the tam tam:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
 Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)

Use hands or fingers on tam tam:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Scraping or glissing the tam tam:

Scrape tam tam with wood beater:

Thomas Adès (b. 1971), *Asyla* (1997)

Scrape tam tam with metal stick, triangle beater, or coin:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Morton Gould (1913-1996), *Symphony of Spirituals* (1975)
 Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Kaija Saariaho (b. 1952), *A la Fumée* (1990)
 Tan Dun (b. 1957), *Death and Fire* (1992)
 Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99)

Tambourine

Unusual types of tambourines:

Use tuned tambourine:

Steve Reich (b. 1936), *Tehillim* (1981)

Use tambourine without jingles:

Steve Reich (b. 1936), *Tehillim* (1981)

Unusual methods for playing the tambourine:

Indication for thumb rolls on tambourine:

Samuel Barber (1910-1981), *Andromache's Farewell* (1962)

Alberto Ginastera (1916-1983), *Violin Concerto* (1963)

Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)

Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)

Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)

Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Play tambourine with sticks:

Steve Reich (b. 1936), *Tehillim* (1981)

John Corigliano (b. 1938), *Symphony No. 1* (1989)

Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)

Steven Stucky (b. 1949), *Concerto No. 2 for Orchestra* (2003)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Mute the tambourine:

Steve Reich (b. 1936), *Tehillim* (1981)

Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)

Mount the tambourine:

Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)

Hit the tambourine on the knee

Vincent Persichetti (1915-1987), *Night Dances* (1970)

Triangle

Unusual sticks used on the triangle:

Snare drum sticks on triangle:

Walter Piston (1894-1976), *Symphony No. 7* (1960)
Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Timpani sticks on triangle:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Hands or fingers on triangle:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

The Standard Mallet Battery

Number of pieces that use any instrument from the standard mallet battery: 84 of 87

Pieces with no standard mallet battery:

Walter Piston (1894-1976), *Symphony No. 7* (1960)

Györgi Ligeti (1923-2006), *Atmosphères* (1961)

Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Number of pieces that use an instrument from the standard mallet battery in a solo moment: 42

Frequency of four mallet technique required: 49 pieces

Frequency of difficult parts (beyond sight-reading capability or requiring memorization): 55 pieces

General Unusual Mallet Technique:

Glissandos:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)

Karel Hüsa (b. 1921), *Mosaïques* (1960)

Leonard Bernstein (1918-1990), *Chichester Psalms* (1965)

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Luciano Berio (1925-2003), *Sinfonia* (1968)

Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Vincent Persichetti (1915-1987), *Night Dances* (1970)

Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)

Michael Tippett (1905-1998), *Symphony No. 4* (1976-77)

Pierre Boulez (b. 1925), *Notations* (1978)

Jacob Druckman (1928-1996), *Aureole* (1979)

Jacob Druckman (1928-1996), *Prism* (1980)

John Corigliano (b. 1938), *Gazebo Dances* (1980-81)

Andrzej Panufnik (1914-1991), *Sinfonia Votiva: Symphony No. 8* (1980-81)

Joan Tower (b. 1938), *Sequoia* (1981)

Christopher Rouse (b. 1949), *Gorgon* (1984)

Alfred Schnittke (1934-1998), *Concerto for Viola and Orchestra* (1985)

Bernard Rands (b. 1934), *...Body and Shadow...* (1988)

Toru Takemitsu (1930-1996), *Twill by Twilight* (1988)

John Corigliano (b. 1938), *Symphony No. 1* (1989)

Rodion Shchedrin (b. 1932), *"Roundelays": 4th Concerto for Orchestra* (1989)

Alfred Schnittke (1934-1998), *Cello Concerto No. 2* (1990)

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Michael Tippett (1905-1988), *The Rose Lake* (1991-93)

Magnus Lindberg (b. 1958), *Cantigas* (1998-99)

Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)

Use of free patterns up or down the instrument (not quite improvisation or glissando):

Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)

Amplification of instrument:

Harrison Birtwistle (b. 1934), *The Triumph of Time* (1971): vibraphone amplification

Dead sticking:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)

Improvisation:

Lou Harrison (1917-2003), *Symphony No. 4* (1990)

Offstage mallet instruments:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)

William Kraft (b. 1923), *Interplay* (1982; revised 1984)

Vibraphone

Number of pieces that require vibraphone: 66

Number of parts that include difficult pedaling: 25

Unusual ways of playing the vibraphone:

Bowing on vibraphone:

John Adams (b. 1947), *The Chairman Dances* (1985)
 Oliver Knussen (b. 1952), *Flourish with Fireworks* (1988)
 Joseph Schwantner (b. 1943), *A Play of Shadows...* (1990)
 Kaija Saariaho (b. 1952), *Orion* (2002)

Instruction to achieve overtones on vibraphone:

Harrison Birtwistle (b. 1934), *The Triumph of Time* (1971): through use of extremely hard mallet or plexiglass mallet

Pitch bending on vibraphone:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Play muted vibraphone:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)

Mallet dampening on vibraphone:

Steve Reich (b. 1936), *The Desert Music* (1984)

Hand dampening on vibraphone:

Charles Wuorinen (b. 1938), *Movers and Shakers* (1984)

Unusual stick requires for the vibraphone:

Metal stick or triangle beater on vibraphone:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)
 Andrzej Panufnik (1914-1991), *Sinfonia Votiva: Symphony No. 8* (1980-81)
 Rodion Shchedrin (b. 1932), "Roundelays": *4th Concerto for Orchestra* (1989)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Xylophone mallet, glockenspiel mallet, or other extremely hard stick on vibraphone:

Harrison Birtwistle (b. 1934), *The Triumph of Time* (1971)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Bernard Rands (b. 1934), *...Body and Shadow...* (1988)
 Toru Takemitsu (1930-1996), *Twill by Twilight* (1988)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Wire brushes on vibraphone:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Drumstick on vibraphone:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Xylophone

Number of pieces that require xylophone: 48

Unusual mallet requests for the xylophone:

Soft mallets on xylophone:

Samuel Barber (1910-1981), *Third Essay for Orchestra* (1978)

Pierre Boulez (b. 1925), *Notations* (1978)

John Adams (b. 1947), *Naïve and Sentimental Music* (1998)

Hands or fingers on xylophone

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Glockenspiel

Number of pieces that require glockenspiel: 65

Unusual requests for playing the glockenspiel:

Pedal glockenspiel required:

Pierre Boulez (b. 1925), *Notations* (1978)

Indications for glockenspiel muffing:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)

Unusual mallet requests for glockenspiel:

Soft mallets on glockenspiel:

Pierre Boulez (b. 1925), *Notations* (1978)

Joan Tower (b. 1938), *Silver Ladders* (1986)

John Adams (b. 1947), *Naïve and Sentimental Music* (1998)

Metal mallets or triangle beaters on glockenspiel:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)

Christopher Rouse (b. 1949), *Gorgon* (1984)

John Adams (b. 1947), *Naïve and Sentimental Music* (1998)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Wire brushes on glockenspiel:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Rubber mallet on glockenspiel:

Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975): hard rubber

Steve Reich (b. 1936), *The Desert Music* (1984): hard rubber

Thomas Adès (b. 1971), *Asyla* (1997)

Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Hands or fingers on glockenspiel:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Marimba

Number of pieces that require marimba: 48

Unusual mallet requests for the marimba:

Triangle beaters on marimba:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Hard wood sticks or snare drum sticks on marimba:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Xylophone mallet or extremely hard plastic mallet on marimba:

Bernard Rands (b. 1934), *...Body and Shadow...* (1988)

Chimes

Number of pieces that require chimes: 56

Unusual requests for the chimes:

Extended range of chimes:

Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970): extending to a C below middle C

Pierre Boulez (b. 1925), *Notations* (1978): down to an F

Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999): up to a high A

Knock chimes against one another:

Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)

3 or 4 note chords on chimes:

Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)

Unusual mallet requests for the chimes:

Metal mallet or triangle beater on chimes:

Benjamin Britten (1913-1976), *War Requiem* (1961)

Leonard Bernstein (1918-1990), *Symphony No. 3: "Kaddish"* (1961-63)

Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)

Jacob Druckman (1928-1996), *Prism* (1980)

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Thomas Adès (b. 1971), *Asyla* (1997)

Wire brushes on chimes:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Yarn mallets on chimes:

Bernard Rands (b. 1934), *...Body and Shadow...* (1988)

Hands or fingers on chimes:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Crotales

Number of pieces that require crotales: 42

Unusual ways of playing the crotales:

Bow crotales:

William Kraft (b. 1923), *Interplay* (1982; revised 1984)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)
 Thomas Adès (b. 1971), *Asyla* (1997)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Kaija Saariaho (b. 1952), *Orion* (2002)

Shake crotales to produce oscillation in pitch:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Place crotale upside-down on timpani head and stroke with mallet while moving pedal:

Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Unusual mallet requests for the crotales:

Metal mallets or triangle beaters on crotales:

Rodion Shchedrin (b. 1932), *"Roundelays": 4th Concerto for Orchestra* (1989)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra*
 (1990)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Rubber mallet or soft mallet on crotales:

Pierre Boulez (b. 1925), *Notations* (1978)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Wood stick or snare drum stick on crotale:

Thomas Adès (b. 1971), *Asyla* (1997)

Hands or fingers on crotales:

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Bell Plates

Number of pieces that require bell plates: 6

William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)

Pierre Boulez (b. 1925), *Notations* (1978)

Christopher Rouse (b. 1949), *Gorgon* (1984)

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Rodion Shchedrin (b. 1932), *Old Russian Circus Music* (1990)

Thomas Adès (b. 1971), *Asyla* (1997)

Unusual stick requests for the bell plates:

Play bell plates with hammer:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Play bell plate with triangle beater or metal mallet:

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Effect Instruments

Number of pieces that use effect instruments: 72 of 87

Pieces that do not require effect instruments:

Györgi Ligeti (1923-2006), *Atmosphères* (1961)
 Alan Hovhaness (1911-2000), *Floating World Ballade for Orchestra* (1964)
 Alan Hovhaness (1911-2000), *Symphony No. 19: Vishnu* (1966)
 Witold Lutoslawski (1913-1994), *Les Espaces du Sommeil* (1975)
 Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)
 John Corigliano (b. 1938), *Gazebo Dances* (1980-81)
 Andrzej Panufnik (1914-1991), *Sinfonia Votiva: Symphony No. 8* (1980-81)
 Steve Reich (b. 1936), *Tehillim* (1981)
 Steve Reich (b. 1936), *The Desert Music* (1984)
 Györgi Kurtág (b. 1926), *...Quasi Una Fantasia...* (1988)
 Toru Takemitsu (1930-1996), *Twill by Twilight* (1988)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 3* (1992)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999)
 Henryk Mikolaj Gorecki (1933-2010), *Slave, Sidus Polonorum* (1997-2000)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Number of pieces that have a solo moment from any effect instrument: 33 pieces

Number of pieces in which each of the following effect instruments are used:

Woodblock: 42
 Temple Blocks: 31
 Almglocken/cowbell: 25
 Whip/Slapstick: 24
 Mark tree/Wind chimes (glass, bamboo, wood, shell): 16
 Castanets: 15
 Ratchet: 13
 Sleighbells: 13
 Anvil: 12
 Log drum: 10
 Flexatone: 9
 Whistle: 8
 Sandpaper blocks: 7
 Thunder sheet: 7
 Bell tree: 6
 Lion's Roar: 6
 Wind Machine: 4
 Finger Cymbals: 3
 Geophone/Ocean drum: 2
 Rain Stick: 1

Unusual technique requests on the effect instruments:

Brushes on woodblocks:

Michael Colgrass (b. 1932), *As Quiet As* (1965-66)

Fingers on woodblock or temple block

Tan Dun (b. 1957), *Death and Fire* (1992)

Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)

Dead stroke on woodblock or temple blocks:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Play wood drum (log drum) with snare drum sticks:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Play wood drum (log drum) with glockenspiel mallets:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Improvisation:

Donald Erb (b. 1927), *The Seventh Trumpet* (1969); instructs performer to improvise on woodblocks and temple blocks

Bow almglocken:

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Offstage instruments:

Gunther Schuller (b. 1925), *Four Soundscapes for Orchestra* (1975)

Specific sticking indicated:

Joan Tower (b. 1938), *Sequoia* (1981)

Timpani

Number of pieces that use timpani: 72 of 87

Pieces that do not require timpani:

Györgi Ligeti (1923-2006), *Atmosphères* (1961)
 Olivier Messiaen (1908-1992), *Des Canyons Aux Etoiles* (1970-74)
 Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)
 Andrzej Panufnik (1914-1991), *Sinfonia Votiva: Symphony No. 8* (1980-81)
 Steve Reich (b. 1936), *Tehillim* (1981)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Lou Harrison (1917-2003), *Symphony No. 4* (1990)
 Joseph Schwantner (b. 1943), *A Play of Shadows...* (1990)
 Olivier Messiaen (1908-1992), *Éclairs sur L'au-delà* (1988-92)
 Michael Tippett (1905-1988), *The Rose Lake* (1991-93)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992 93)
 Philip Glass (b. 1937), *Symphony No. 4: "Heroes: A Symphony Ballet"* (1996)
 Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)
 Henryk Mikolaj Gorecki (1933-2010), *Salve, Sidus Polonorum* (1997-2000)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Number of pieces that have a solo moment on the timpani: 41 pieces

Number of pieces that require more than four drums: 28 pieces

Number of pieces that require extensive tuning: 21 pieces

Number of pieces in which a tuning gauge would be necessary: 38 pieces

Unusual ways of playing the timpani:

Glissando on timpani:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
 Karel Hüsa (b. 1921), *Mosaïques* (1960)
 Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Alan Hovhaness (1911-2000), *Floating World Ballade for Orchestra* (1964)
 George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)
 David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)
 Harrison Birtwistle (b. 1934), *The Triumph of Time* (1972)
 Morton Gould (1913-1996), *Symphony of Spirituals* (1975)
 Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Vincent Persichetti (1915-1987), *Night Dances* (1970)
 Witold Lutoslawski (1913-1994), *Les Espaces du Sommeil* (1975)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Jacob Druckman (1928-1996), *Prism* (1980)
 John Harbison (b. 1938), *Symphony No. 1* (1980-81)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)
 Alfred Schnittke (1934-1998), *Concerto for Viola and Orchestra* (1985)

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Oliver Knussen (b. 1952), *Flourish With Fireworks* (1988)
 Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)
 Györgi Kurtág (b. 1926), *...Quasi Una Fantasia...* (1988)
 Bernard Rands (b. 1934), *...Body and Shadow...* (1988)
 Toru Takemitsu (1930-1996), *Twill By Twilight* (1988)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Rodion Shchedrin (b. 1932), *"Roundelays": 4th Concerto for Orchestra* (1989)
 Kaija Saariaho (b. 1952), *À La Fumée* (1990)
 Alfred Schnittke (1934-1998), *Cello Concerto No. 2* (1990)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Tan Dun (b. 1957), *Death and Fire* (1992)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99)
 Kaija Saariaho (b. 1952), *Orion* (2002)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Play on shell of drum:

Michael Colgrass (b. 1932), *As Quiet As* (1965-66)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)
 Thomas Adès (b. 1971), *Asyla* (1997)

Play the timpani at the rim or on the rim:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Jacob Druckman (1928-1996), *Prism* (1980)
 Oliver Knussen (b. 1952), *The Way to Castle Yonder* (1988)

Play dead center:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Play timpani with one stick striking the other after having laid the stick on the head:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)

Hit a maraca on the timpani head:

Leonard Bernstein (1918-1990), *Symphony No. 3: "Kaddish"* (1961-63)

Improvisation:

Leonard Bernstein (1918-1990), *Symphony No. 3: "Kaddish"* (1961-63)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Dead stroke on timpani:

Thomas Adès (b. 1971), *Asyla* (1997)

Drums coperti or with muffling:

Karel Hüsa (b. 1921), *Mosaiques* (1960)

Michael Colgrass (b. 1932), *As Quiet As* (1965-66)
 William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)
 Steve Reich (b. 1936), *The Desert Music* (1984)
 Charles Wuorinen (b. 1938), *Movers and Shakers* (1984)
 Henry Brant (1913-2008), *Ice Field* (2001)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Hitting two sticks on one timpano simultaneously:

Benjamin Britten (1913-1976), *War Requiem* (1961)
 Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Holding 3 sticks at one to play 3 note chords on timpani:

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005)

Suspended cymbal placed on timpani and bowed or rolled:

Toru Takemitsu (1930-1996), *Twill By Twilight* (1988)
 Tan Dun (b. 1957), *Death and Fire* (1992)

Play triangle on timpani head:

Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Place crotale upside-down on timpani head and strike while moving pedal:

Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Place Japanese Temple Bowl on timpani to play:

Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Specific stickings provided by the composer:

Joan Tower (b. 1938), *Sequoia* (1981)

Unusual stick requests for the timpani:

Play timpani with wooden sticks, butt of stick, or snare drum stick:

Benjamin Britten (1913-1976), *War Requiem* (1961)
 Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Leonard Bernstein (1918-1990), *Symphony No. 3: "Kaddish"* (1961-63)
 Witold Lutoslawski (1913-1994), *Concerto for Cello and Orchestra* (1970)
 Pierre Boulez (b. 1925), *Notations* (1978)
 Jacob Druckman (1928-1996), *Prism* (1980)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 John Harbison (b. 1938), *Symphony No. 2* (1986-87)
 Györgi Kurtág (b. 1926), *... Quasi Una Fantasia...* (1988)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)
 Thomas Adès (b. 1971), *Asyla* (1997)

Henry Brant (1913-2008), *Ice Field* (2001)
 Steven Stucky (b. 1949), *Concerto No. 2 for Orchestra* (2003)

Wire brushes on timpani:

Michael Colgrass (b. 1932), *As Quiet As* (1965-66)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Jacob Druckman (1928-1996), *Prism* (1980)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984)

Hard yarn mallet on timpani:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Fingers or hands on the timpani:

Krzysztof Penderecki (b. 1933), *Fluorescences* (1962)
 Morton Feldman (1926-1987), *In Search of an Orchestration* (1967)
 George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Pieces that require notes outside of the typical drum range (low D to high B):

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960): F-C# (augmented 12th)
 William Kraft (b. 1923), *Contextures: Riots-Decades '60* (1967): C-C (15th)
 Elliot Carter (b. 1908), *Concerto for Orchestra* (1969): C#-Cb (diminished 15th)
 Samuel Barber (1910-1981), *Third Essay for Orchestra* (1978): C-C (15th)
 Jacob Druckman (1928-1996), *Prism* (1980): D-C (minor 14th)
 William Kraft (b. 1923), *Interplay* (1982; revised 1984): C-C (15th)
 Steve Reich (b. 1936), *The Desert Music* (1984): D#-Db (diminished 15th): players can use 4 timpani and a set of roto-toms instead of piccolo timpani
 Charles Wuorinen (b. 1938), *Movers and Shakers* (1984): C-B (14th)
 Györgi Kurtág (b. 1926), *...Quasi Una Fantasia...* (1988): C-C (15th)
 Bernard Rands (b. 1934), *...Body and Shadow...* (1988): C-A (13th)
 John Corigliano (b. 1938), *Symphony No. 1* (1989): C-C (15th)
 Kaija Saariaho (b. 1952), *À La Fumée* (1990): C-C (15th)
 Alfred Schnittke (1934-1998), *Cello Concerto No. 2* (1990): C#-A (minor 13th)
 Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991): Db-B (augmented 13th)
 Thomas Adès (b. 1971), *Asyla* (1997): Db-D (augmented 15th)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99): C-Bb (minor 14th)
 Ellen Taaffe Zwilich (b. 1939), *Symphony No. 4* (1999): C-C (15th)
 Esa-Pekka Salonen (b. 1958), *Insomnia* (2002): C-Bb (minor 14th)
 Thomas Adès (b. 1971), *Violin Concerto: Concentric Paths* (2005): Bb (below low C)-A (14th)

The Standard Latin Battery

Number of pieces that require any Latin percussion: 44 of 87

Number of pieces that include a solo moment on any Latin instrument: 27 pieces

Number of pieces in which each of the following Latin instruments are used:

Bongos: 31
 Maraca: 25
 Claves: 21
 Guiro/rasp/réco-réco/gourd: 20
 Timbales: 13
 Conga: 11
 Vibraslap/Jawbone: 5
 Shaker/Chocalho: 6
 Cabasa: 3
 Quica: 1

Unusual Techniques of the Latin Instruments:

Play bongos with brushes:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
 Luciano Berio (1925-2003), *Sinfonia* (1968)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Christopher Rouse (b. 1949), *Gorgon* (1984)

Play timbales with fingers:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Play timbales with wire brushes:

William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
 Jacob Druckman (1928-1996), *Aureole* (1979)
 Christopher Rouse (b. 1949), *Gorgon* (1984)

Lay a stick on conga and let the handle ricochet off the head:

Jacob Druckman (1928-1996), *Aureole* (1979)
 Jacob Druckman (1928-1996), *Prism* (1980)

Improvisation required:

Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Other Ethnic or Unusual Instruments:

Bells:

Small bells and high pitched small bells:

Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Kaija Saariaho (b. 1952), *Orion* (2002)

Christmas bells:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Dog collar bells:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Japanese bells:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Elephant bells:

Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Chinese bells:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)

Indian bells:

George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Györgi Kurtág (b. 1926), ... *Quasi Una Fantasia* (1988)

Little hand bells:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Bicycle bells:

Györgi Kurtág (b. 1926), ... *Quasi Una Fantasia* (1988)

Geisha bells:

Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)

Pakistan Noah bells:

Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Handbells:

John Corigliano (b. 1938), *Gazebo Dances* (1980-81)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

Temple bell (Japanese):

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Electric bell:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

Gongs:*Japanese temple bowls (bowl gongs, cup bowl):*

- Rodion Shchedrin (b. 1932), *“Roundelays”*: 4th Concerto for Orchestra (1989)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Kaija Saariaho (b. 1952), *Orion* (2002)

Gongs (pitched gong, nipple gong, Chinese gong, Chinese winter gong, Thai gong, Javanese gong):

- Krzysztof Penderecki (b.1933), *Fluorescences* (1962)
 George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 William Kraft (b. 1923), *Contextures: Riot-Decades '60* (1967)
 Olivier Messiaen (1908-1992), *Des Canyons aux Etoiles* (1970-74)
 Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)
 Christopher Rouse (b. 1949), *Gorgon* (1984)
 Magnus Lindberg (b. 1958), *Kraft* (1983-85)
 Györgi Kurtág (b. 1926), *... Quasi Una Fantasia* (1988)
 Rodion Shchedrin (b. 1932), *“Roundelays”*: 4th Concerto for Orchestra (1989)
 Lou Harrison (1917-2003), *Symphony No. 4* (1990)
 Kaija Saariaho (b. 1952), *A La Fumée* (1990)
 Alfred Schnittke (1934-1998), *Cello Concerto No. 2* (1990)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)
 Olivier Messiaen (1908-1992), *Éclairs sur L'au-delà...* (1988-92)
 Michael Tippett (1905-1988), *The Rose Lake* (1991-93)
 Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Harrison Birtwistle (b. 1934), *Exody “23:59:59”* (1997)
 John Adams (b. 1947), *Naïve and Sentimental Music* (1998)
 Magnus Lindberg (b. 1958), *Cantigas* (1998-99)
 Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Water gongs:

- George Crumb (b. 1929), *Echoes of Time and the River* (1967)
 Thomas Adès (b. 1971), *Asyla* (1997)

Ethnic drums:*Arabic or Turkish drums (darabuka):*

- Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

Bodhràn:

- Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

Djembe:

Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

Israeli hand-drum:

Leonard Bernstein (1918-1990): *Symphony No. 3: "Kaddish"* (1961-63)

Chinese drum (see tom tom):

Roger Session (1896-1985), *Symphony No. 6* (1966)
 Roger Session (1896-1985), *Concerto for Violin, Cello and Orchestra* (1971)
 Lou Harrison (1917-2003), *Symphony No. 4* (1990)
 Harrison Birtwistle (b. 1934), *Exody "23:59:59"* (1997)

Indian drum:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
 Michael Colgrass (b. 1932), *As Quiet As* (1965-1966)

Hand drum:

Pierre Boulez (b. 1925), *Notations* (1978)

Tablas:

Pierre Boulez (b. 1925), *Notations* (1978)

Tambourin provençale/Tambour de Provence:

Roger Session (1896-1985), *Symphony No. 6* (1966)
 Roger Session (1896-1985), *Concerto for Violin, Cello and Orchestra* (1971)

Roto-toms:

William Kraft (b. 1923), *Contextures: Riot-Decades '60* (1967)
 Steve Reich (b. 1936), *The Desert Music* (1984)
 John Corigliano (b. 1938), *Symphony No. 1* (1989)
 Tan Dun (b. 1957), *Death and Fire* (1992)
 Michael Tippett (1905-1988), *The Rose Lake* (1991-93)
 Thomas Adès (b. 1971), *Asyla* (1997)
 Esa-Pekka Salonen (b. 1958), *Insomnia* (2002)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Rute:

Christopher Rouse (b. 1949), *Gorgon* (1984)
 Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)
 Jennifer Higdon (b. 1962), *Violin Concerto* (2009)

Steel drums:

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
 Henry Brant (1913-2008), *Ice Field* (2001)

Boo-bams:

Pierre Boulez (b. 1925), *Notations* (1978)
 Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Cymbalettes (jingles on a stick) or sistrum:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
 Pierre Boulez (b. 1925), *Notations* (1978)

Bass xylophone:

Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)

Marimbula (African harp):

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Thunderstick (bull roarer):

Kaija Saariaho (b. 1952), *Orion* (2002)

Anklung (bamboo shakers):

Györgi Kurtág (b. 1926), *...Quasi Una Fantasia* (1988)
 Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Japanese wind chimes:

Joseph Schwantner (b. 1943), *Concerto for Percussion and Orchestra* (1994)

Russian Spoons:

Rodion Shchedrin (b. 1932), *“Roundelays”*: 4th *Concerto for Orchestra* (1989)

Waterphone:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Keprak (wooden slit drum from Indonesia):

Lou Harrison (1917-2003), *Symphony No. 4* (1990)

Gentorak (Balinese bell tree):

Lou Harrison (1917-2003), *Symphony No. 4* (1990)

Mokubios (high-pitched Japanese woodblocks):

Pierre Boulez (b. 1925), *Notations* (1978)

Keisu (Japanese temple instrument, also called a Dobači):

Karlheinz Stockhausen (1928-2007), *Michael's Greeting* (1978)

Den Den Daiko (Japanese toy instruments: high woodblocks):

Oliver Knussen (b. 1952), *Flourish With Fireworks* (1988)

Theremin:

David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)

Lujon (very large kalimba):

Christopher Rouse (b. 1949), *Gorgon* (1984)

“Found” Instruments:

Horns:

Car Horns:

Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)

Fog horn:

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Sirens:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)

Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Metals:

Metal block:

Pierre Boulez (b. 1925), *Notations* (1978)

John Harbison (b. 1938), *Symphony No. 1* (1980-81)

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Thomas Adès (b. 1971), *Asyla* (1997)

Metal plate:

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

John Corigliano (b. 1938), *Symphony No. 1* (1989)

Kaija Saariaho (b. 1952), *A La Fumée* (1990)

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Brake drum:

Christopher Rouse (b. 1949), *Gorgon* (1984)

John Corigliano (b. 1938), *Symphony No. 1* (1989)

Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

Joseph Schwantner (b. 1943), *Concerto for Percussion and Orchestra* (1994)

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Spring Coil:

Oliver Knussen (b. 1952), *Flourish With Fireworks* (1988)

Magnus Lindberg (b. 1958), *Cantigas* (1998-99)

Tin drums:

Brian Ferneyhough (b. 1943), *Plötzlichkeit* (2006)

Tins:

Thomas Adès (b. 1971), *Asyla* (1997)

Small can (metal) or square tin:

Thomas Adès (b. 1971), *Asyla* (1997)

Bag full of knives and forks:

Thomas Adès (b. 1971), *Asyla* (1997)

Saucepan:

Mark-Anthony Turnage (b. 1960), *Your Rockaby* (1992-93)

A piece of iron/metal:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

Metal slab to be rubbed with a file:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

Woods:**A piece of wood:**

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

Sticks:

Steve Reich (b. 1936), *The Desert Music* (1984)

Box:

Lou Harrison (1917-2003), *Symphony No. 4* (1990)

Glass:**Champagne glasses:**

Rodion Shchedrin (b. 1932), "Roundelays": 4th *Concerto for Orchestra* (1989)

A piece of glass:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962)

Suspended glass sheets:

Hans Werner Henze (b. 1926), *Symphony No. 9* (1995-97)

Stones:

Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)

Christopher Rouse (b. 1949), *Gorgon* (1984)

Tan Dun (b. 1957), *Death and Fire* (1992)

Birds:**Bird calls:**

Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)

Birds singing:

Rodion Shchedrin (b. 1932), *Old Russian Circus Music: Concerto No. 3 for Orchestra* (1990)

Clapping:

Steve Reich (b. 1936), *Tehillim* (1981)

“Mahler” Hammer:

Christopher Rouse (b. 1949), *Gorgon* (1984)

Magnus Lindberg (b. 1958), *Kraft* (1983-85)

Washboard:

Thomas Adès (b. 1971), *Asyla* (1997)

Hand saw:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962): Javanese gong

Typewriter:

Krzysztof Penderecki (b.1933), *Fluorescences* (1962): Javanese gong

5” salmon reel with ratchet:

Harrison Birtwistle (b. 1934), *Exody “23:59:59”* (1997): large nipple gong

Gunshot:

Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)

Pop bottle partly filled with water:

Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Gallon milk jug half filled with water:

Donald Erb (b. 1927), *The Seventh Trumpet* (1969)

Set-up Diagram

Number of pieces that provide a setup diagram: 8 of 87 pieces

Pieces that provide setup diagrams:

- Györgi Ligeti (1923-2006), *Atmosphères* (1961)
- George Crumb (b. 1929), *Echoes of Time and the River* (1967)
- Luciano Berio (1925-2003), *Sinfonia* (1968)
- Elliot Carter (b. 1908), *Concerto for Orchestra* (1969)
- William Kraft (b. 1923), *Interplay* (1982; revised 1984)
- Steve Reich (b. 1934), *The Desert Music* (1984)
- John Corigliano (b. 1938), *Symphony No. 1* (1989)
- Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)

Multi-Percussion in the Orchestra

Number of pieces that have parts that could be classified as "multiple percussion": 48 of 87 pieces

Percussion Ensemble

Number of pieces that include percussion ensemble or mallet ensemble: 21 of 87

- Alberto Ginastera (1916-1983), *Cantata Para América Mágica* (1960)
- Benjamin Britten (1913-1976), *War Requiem* (1961)
- Leonard Bernstein (1918-1990), *Symphony No. 3: "Kaddish"* (1961-63)
- Alberto Ginastera (1916-1983), *Violin Concerto* (1963)
- Alan Hovhaness (1911-2000), *Floating World Ballade for Orchestra* (1964)
- Henri Dutilleul (b. 1916), *Métaboles* (1965)
- George Crumb (b. 1929), *Echoes of Time and the River* (1967)
- William Kraft (b. 1923), *Contextures: Riots-Decade '60* (1967)
- Vincent Persichetti (1915-1987), *Night Dances* (1970)
- David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)
- Samuel Barber (1910-1981), *Third Essay for Orchestra* (1978)
- John Harbison (b. 1938), *Symphony No. 1* (1980-81)
- William Kraft (b. 1923), *Interplay* (1982; revised 1984)
- Steve Reich (b. 1936), *The Desert Music* (1984)
- Christopher Rouse (b. 1949), *Gorgon* (1984)
- Charles Wuorinen (b. 1938), *Movers and Shakers* (1984)
- John Adams (b. 1947), *The Chairman Dances* (1985)
- Hans Werner Henze (b. 1926), *Heliogabalus Imperator* (1971-72; revised 1986)
- Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
- Györgi Ligeti (1923-2006), *Macabre Collage for Large Orchestra* (1974-77; revised 1991)
- Michael Tippett (1905-1988), *The Rose Lake* (1991-93)

Number of pieces that include a mallet ensemble:

- David Del Tredici (b. 1937), *An Alice Symphony* (1969; revised 1971)
- Christopher Rouse (b. 1949), *Gorgon* (1984)
- Toru Takemitsu (1930-1996), *Flow From Me What You Call Time* (1990)
- Michael Tippett (1905-1988), *The Rose Lake* (1991-93)

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