AN EXAMINATION OF TWO SIGNIFICANT MULTIPLE PERCUSSION COMPOSITIONS: KARLHEINZ STOCKHAUSEN'S ZYKLUS AND INGOLF DAHL'S DUETTINO CONCERTANTE.

A LECTURE RECITAL TOGETHER WITH FIVE RECITALS OF SELECTED WORKS OF A. GINASTERA, A. WILDER, W. KRAFT, AND OTHERS

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF MUSICAL ARTS

By

Michael R. Carney, M.M.

Denton, Texas

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Zyklus (1959) by Karlheinz Stockhausen and Duettino Concertante (1966) by Ingolf Dahl represent two of the most significant percussion compositions that present the percussionist as soloist. The performer of these works, either unaccompanied or accompanied by a non-percussion instrument, is featured as executant, interpreter, and improvisor. They are regarded as classics in the medium of multiple percussion because of their frequency of performance and their profound effect on notation, musical composition, and the technical expectations of the percussionist.

This paper examines these compositions and their historical significance to both percussion literature and the percussionist. Each of these compositions is analyzed by examining instrumentation, compositional procedures, and performance problems. Finally, the notational procedures and role of the performer in these compositions are compared.
A discussion of the development of the percussion batterie, percussion ensemble, and the important early solo multiple percussion compositions provides historical perspective for these compositions. This perspective is enhanced by consideration of biography, influences, and stylistic development of each composer.
Tape recordings of all performances submitted as dissertation requirements are on deposit in the North Texas State University Library.
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VOICES OF CHANGE  Pergamena Musica

Jo Bostright piano
Ronald Neal violin
Christine Schadeberg soprano
Nancy Todd violin
Craig Mauser cello
Mary Motz viola

MTSU PERCUSSION ENSEMBLE

Neil Castland, Bob Williamson timpans
genero Gandare, Robert Adamez canes
Craig Gilliland tambores di lengua
Brenda Duez p nett
Mark Johnson piettas
Randy Drake, Dan Caliper and tam tam
Paul Durvasa baccia
timothy carney marimba
Tim Peterson marimba
Keith Blashe glockenspiel
Ron Brough celeste

assisted by:
Jo Bostright and Gary Oxford piano

rehearsed by:
Dr. Robert Schiefler, Coordinator, MMTU Percussion Dept.

This evening’s conductor:
William Kraft, Director of Los Angeles Percussion Ensemble

PROGRAM

7:15 p.m. Discussion

The Music of Alberto Ginastera:
Cultural Roots and Compositional Style

Dr. Helana Kuss,
Assistant Professor of Music, MTSU

8:15 p.m. Concert

STRING QUARTET NO. 3, opus 40 1973
(with soprano voice)

Conventione Fantastico
Amarose
Dramatismo
Di nuovo

PAPIER MAIC HO. 2, opus 11 1950

A musical for cello and piano

- INTERMISSION -

CANTERA PARA AMERICA MAGICA 1946

with soprano and percussion ensemble

Perdido and Song of Dawn
Necromancer and Love Song
Song for the Marcellis’ Departure
Fantastic Interlude
Song of Agony and Desolation
Song of Prophecy

This series of concerts is made possible in part by grants from the Paul Foundatun Chamber Music Residency Program, administered by Chamber Music America, and the City Arts Program, Music and Recreation Department, City of Dallas, and the National Endowment for the Arts in Washington, D.C., a Federal Agency. Co-sponsors for the residency are the Division of Music, Meadows School of the Arts, Southern Methodist University, and Radio Station KERA-FM, National Public Radio for North Texas.

Voices of Change Logo Design: John Greywolf
Brochure and Program Cover Design: Bob Johnson
North Texas State University  
School of Music  

presents  

Michael R. Carney  

in a  

DMA Percussion Recital  

assisted by  

Ardyth Corliss, flute  
Dr. Edward Baird, voice  
David Fivecoate, alto saxophone  

Monday, July 6, 1981  
5:00 p.m.  
Concert Hall  

Two Mexican Dances for Marimba .................................. Gordon Stout  
Images ........................................................................... William Kraft  
Suite For Flute And Marimba ........................................ Alec Wilder  
Four Meditations ............................................................ Newel Kay Brown  
  The Starlight Night  
  Thou Art Indeed Just, Lord  
  God's Grandeur  
  Pied Beauty  

This program is presented in partial fulfillment for the requirements of Doctor of Musical Arts degree.
North Texas State University
School of Music

Graduate Recital

MICHAEL R. CARNEY, Percussion

Assisted by:
Larry Engstrom, Trumpet

Monday, August 6, 1984  6:30 p.m.  Concert Hall

Conversation - Suite for Marimba. . . . . . . . Akira Miyoshi
  Tender Talk
  So Nice It Was . . . Repeatedly
  Lingering Chagrin
  Again the Hazy Answer!
  A Lame Excuse

Four Pieces for Solo Vibraphone. . . . . . . . Larry Spivack
  Fanfare
  March
  Waltz
  Ragtime

Encounters III. . . . . . . . . . . . . . . . . William Kraft
Duel for Trumpet and Percussion
  1. Strategy
  2. Truce of God
  3. Tactics

Presented in partial fulfillment of the requirements for the degree of
Doctor of Musical Arts
FACULTY RECITAL

MICHAEL R. CARNEY, Percussion

Assisted by

Pamela Richman, voice
Anne Cox, harp
Theresa Dimond, percussion

November 14, 1986     8:00 p.m.     Recital Hall

Two Movements for Marimba . . .  Toshimitsu Tanaka
Raga No. 1 . . . . . . . . . . . . William Cahn
Circles . . . . . . . . . . . . . . Luciano Berio
Graduate Recital

MICHAEL R. CARNEY, Percussion

Assisted by

Robert Ledbetter, Marimba

Monday, January 19, 1987  8:00 p.m.  Recital Hall

Two Movements for Marimba.       .Toshimitsu Tanaka

Raga No. 1         .William L. Cahn

Conversations.                 Murray Houllif
A Vibraphone and Marimba Duo

Continuum.        Daniel Kessner
For Solo Marimba

Presented in partial fulfillment of the requirements for the degree of Doctor of Musical Arts
North Texas State University
School of Music
Graduate Lecture Recital

MICHAEL R. CARNEY, Percussion

Assisted by
Kim French, Flute

Monday, July 27, 1987  5:00 p.m.  Recital Hall

AN EXAMINATION OF TWO SIGNIFICANT MULTIPLE PERCUSSION COMPOSITIONS: KARLHEINZ STOCKHAUSEN'S ZYKLUS AND INGOLF DAHL'S DUETTINO CONCERTANTE

Presented in partial fulfillment of the requirements for the degree of Doctor of Musical Arts
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CHAPTER I

INTRODUCTION

Early Percussion Batterie

The standard percussion instruments introduced and utilized in the orchestras of the mid-eighteenth century were used for their ability to be associated with non-musical events, special effects, and descriptive purposes. These instruments, such as anvils, tubular bells, wind machines, and gongs, enabled the composer to imply a particular mood or assist in portraying a dramatic event. The entire percussion batterie may have been introduced to orchestras because of many composers' attempts at imitating the Turkish style of music, which was influencing Europe at this time.¹

Hector Berlioz, an important innovator of percussion, utilized the batterie not only for coloristic and ornamental purposes, but also for structural delineation. His great innovations in percussion orchestration, contained in works such as Symphonie Fantastique (1830) and Romeo and Juliet (1838), were numerous and influential. Some of his

most important innovations were; the wide range of timpani tuning, the combination of instruments in pairs (triangle and tambourine, bass drum and cymbal, timpani and bass drum), the consistent use of more than two timpani, the rhythmic independence of bass drum and cymbals, the exploitation of the widest possible range of dynamics, the introduction of the suspended cymbal, the use of solo percussion, and the inclusion of exotic percussion for special effects.

Many composers such as Giacomo Puccini, Richard Strauss, Jan Sibelius, Claude Debussy, Gustav Mahler, and Richard Wagner developed further expressive uses for the percussion section. Debussy expanded the coloristic use of percussion in his pointillistic antique cymbal writing in L'Apres-midi d'un faune (1894). Mahler placed a great emphasis on the percussion section and began to expand it to include as many as six or seven players. Mahler's batterie, which included snare drum, bass drum, and cymbals, demonstrated a strong military influence in his third and sixth symphonies and also displayed unusual instruments and musical effects such as sleigh bells in Symphony No. 4, cow bells, wooden hammer, rute (birch brush) on bass drum, and whip in Symphony No. 6.

The first example of purely percussive composition (music performed entirely on percussion instruments of indeterminate pitch) is found in the transitions from the
second to the third and from the third to the fourth scenes of *Das Rheingold* by Richard Wagner. According to Karl Wörner, "the percussion writing in *Das Rheingold* is only a 'conditioned' abstraction, since the rhythm that the anvils play as the so-called 'smith motive' has already imprinted itself on the ear in the second scene in conjunction with pitches and text."\(^2\)

In the first half of the twentieth century, the percussionist was elevated to the level of a virtuoso artist and soloist by many composers, including Arnold Schoenberg, Maurice Ravel, Sergei Prokofiev, Igor Stravinsky, and Béla Bartók.

Bartók's *Music for Strings, Percussion, and Celesta* (1937) represents a most important contribution to the expansion and development of the percussion section. His familiarity with percussion led him to write meticulous directions for the percussionist. The percussion is orchestrated rhythmically and harmonically in such a way as to replace the woodwind and brass sections. Bartók's emphasis on percussion began to pave the way for a fourth section of the orchestra equal to the strings, woodwinds, and brass.

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Igor Stravinsky's treatment of percussion in *Petrushka* (1911), *Le Sacre du Printemps* (1913), and *Les Noces* (1923) demonstrated his knowledge of percussion and also raised the level and importance of the percussion section as an equal entity within the orchestra. "Nowhere else in orchestral literature has percussion been given such a wide scope of unbridled power as in *Le Sacre du Printemps.*" Stravinsky exploited the percussive possibilities of the entire orchestra while the large percussion section provided rhythmic complexity, generated power, and contributed exotic color to the orchestration. Stravinsky's keen awareness of and fascination with percussion also provided for the first multiple percussion solo in chamber music, *L'Histoire du Soldat* (1918). Stravinsky gave this view of the percussion batterie and of *L'Histoire du Soldat*:

The role of the batterie was another novelty, at least in 1918. Percussion sections had long served the orchestra as arsenals and sound-prop departments, and supplied it with extra colours, articulation, weight. But before *L'Histoire du Soldat* and this Svadebka version, in which the percussion is a continuing and internally consistent element, the drums had never really been "given their heads." The character of the music is percussive, moreover, and that character is part of me . . . to bang a gong, bash a cymbal, clout a wood block (or critic)

---

has always given me the keenest satisfaction.

The Percussion Ensemble Movement

Stravinsky introduced the percussion ensemble to chamber music in *Les Noces* (1923). The percussion section is divided into groups of definite and indefinite pitch; four pianos, xylophone, bells, crotales, and timpani are definite pitch, while four drums, tambourine, bass drum, cymbals, and triangle represent the indefinite pitched percussion. The definite pitched percussion provide ostinati, contrapuntal lines and doublings with the vocal parts, while the indefinite pitched percussion complement the rhythmic movement of the text.

In 1913, Luigi Russolo, an Italian musician and artist, began the futurist movement. This movement related music to daily experience, stressed the importance of rhythm and noise, suppressed melodic instruments, and revealed the possibilities of timbre inherent in percussive devices. This movement brought concepts for the use of percussion to the attention of composers and the general public.

After World War I, the futurist movement took on a new form as "Machine Music." The machine age was exemplified in Arthur Honegger's *Pacific 231* (1924), George Antheil's *Ballet mécanique* (1924), Carlos Chavez's *HP* (1927), Serge

---

Prokofiev's *Dance of Steel* (1927), John Alden Carpenter's *Skyscrapers* (1927) and Alexander Mossolov's *Symphony of Machines; Steel Foundry* (1928). Although the compositions in the Machine Music Movement did not rely exclusively on percussion instruments, they did, however, incorporate the percussion prominently into their compositions.

In 1928, several prominent composers set out to create an organization dedicated to the music of the Americas. The Pan American Association of Composers was formed with an executive board of Edgard Varèse, President, and Emerson Whithorne, Henry Cowell, Carl Ruggles, and Carlos Chávez as Vice Presidents. The movement toward ethnomusicology in works of the Americas was important to the furthering of new music, and also important to the emergence of the use of percussion as a separate chamber music ensemble. Exotic music, jazz concepts, and the indigenous rhythms and instruments of Latin America were gaining importance to the composers' association. As the association grew, important contributors to the percussion ensemble movement were placed in high positions. Among these were Henry Cowell, Jose Andre, Amandeo Roldán, and Carlos Chavés.

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Roldán, a Cuban, was among the first to incorporate percussion instruments extensively in orchestral works. His interest in indigenous rhythms and instruments led to the composing of six "ritmicas" (1930). *Ritmica V* and *Ritmica VI*, written exclusively for percussion, were the first known examples of percussion ensemble compositions. These compositions were based on fixed Cuban dance patterns and featured Latin American instruments almost exclusively. Each performer plays one instrument except in *Ritmica V*, where one performer plays claves and two cowbells.

*Ionization* (1931), by Edgard Varèse, shows a more adventurous use of percussion than Roldan's works and has been considered more significant in the early developments of percussion ensemble music. Instead of using one player per instrument, *Ionization* consists of 37 percussion instruments to be played by 13 players. In addition to the indeterminate pitched percussion instruments, there are two sirens, bells, glockenspiel, and piano. Incidentally, the percussive keyboards are used only in the last 17 measures of the work. According to Worner,

Varèse's *Ionization* is the precedent for every percussion work that has since followed... Varèse concentrates on rhythm as a vehicle for expression. The rhythms that are heard are almost throughout abstractions in that they have seceded from the dominion of the melodic, having no pitch outline. But they are still melodic motives reduced to
rhythm, and are developed individually according to traditional principles. \(^6\)

The percussion compositions by Lou Harrison and John Cage contributed many new concepts. Harrison and Cage incorporated many non-traditional percussion instruments such as brake drums, tin pans, dinner bells, rice bowls, metal sheets, and bottles.

Harrison, the most prolific of the "West Coast" composers of the late 1930's and early 1940's, employed unconventional instruments including flexatone, musical saw, bell coils, and flower pots. He also used graduated sets of like instruments such as tom-toms, woodblocks, gongs, temple blocks, and bells. His use of graduated instruments of similar timbre was an influential concept. His important works include *Fifth Symphony* (1939), *Bomba* (1939), *Canticle #3* (1940), *Labyrinth #3* (1941), *Song of Quezcteocatl* (1941), *Fugue* (1942), and *Double Music* (1941).

John Cage described percussion music as the "contemporary transition from the keyboard-influenced music to the all-sound music of the future. Any sound is acceptable to the composer of percussion music." \(^7\) Cage was influenced by modern dance, Oriental music (especially rhythm) and

\(^6\) Wörner, *op. cit.*, 208.

philosophy, and his studies with Arnold Schoenberg at U.C.L.A. (1934-1937). Cage studied the structural function of tonality and sought to find some structural means of adequately composing for percussion. Many of Cage's compositions combine percussion instruments with electronic instruments and tape-recorded sounds. He also included percussion instruments that were capable of producing "electronic-type" sounds: flexatone, musical saw, sirens, water gongs. Cage wrote over sixteen pieces for percussion including First Construction in Metal (1939), Imaginary Landscape No. 1 (1939), Second Construction (1940), Amores (1942), and Imaginary Landscape No. 2 (1942), and Imaginary Landscape No. 3 (1942).

Composers of percussion ensemble music created a great interest in percussion in general and also the concept of pure percussion music. Percussion had now developed technique and virtuosity that began to rival other instruments. The ultimate demands of conceptualization, virtuosity, and musicality, that grew out of the orchestral batterie and the percussion ensemble were no more evident than in the compositions for the solo percussionist.

* Stuart Smith, "The Early Percussion Music of John Cage," Percussionist XIV/1 (Fall 1978), 20.
Experimenation and Solo Percussion Compositions

The three most important composers responsible for the origination and early development of solo multiple percussion compositions were Igor Stravinsky, Darius Milhaud, and Béla Bartók.

Stravinsky, mentioned earlier in regard to his important contributions to the percussion batterie and percussion ensemble, was also the first to compose for a solo multiple percussionist. During the 1910's, Stravinsky was experimenting with the idea of one player playing an assortment of percussion instruments. In 1918, Stravinsky purchased various drums and other percussion instruments and began to learn to play them together as a unit. His idea was to write a work incorporating the percussionist with other instruments, all receiving equal attention as soloists within an ensemble. L'Histoire du Soldat was the result of this idea. Stravinsky worked out all the percussion parts as he composed, actually learning to play the entire percussion part by himself. The instruments required include a bass drum, three different sized snare drums, suspended cymbal, triangle, and tambourine. The percussion part was written on a five-line staff, with the lines and spaces designating a particular instrument. Stravinsky also included suggestions for the type of stick to be used in performance.
Darius Milhaud was another composer interested in the use of percussion. Although he experimented with percussion in his opera, *Les choëphores* (1915), his next major work, a ballet entitled *L'homme et son désir*, featured short passages of unaccompanied percussion. Milhaud was anxious about the audience reaction to this innovation because concert-goers tended to be very demonstrative in France in the 1920's. He attributed the surprisingly calm reception to the brevity of the passages using percussion alone and to the sedate mood provided by the vocal quartet.\(^9\)

In 1923, Milhaud travelled to the United States and spent many hours in the dance halls and theaters of Harlem. He was very impressed with the drummers that played a battery of percussion instruments at the same time. These drummers and the jazz music itself left a deep impression on Milhaud and this impression would influence many of his later works.\(^10\)

Later in the same year, Milhaud composed *La création du monde*, a work which definitely shows strong jazz influences. The percussion part consists of an assortment of percussion instruments (similar to a drum set used by the Harlem drummers) to be played by one player. The


\(^10\) Ibid.
Instruments called for are tambourine, wood block, cymbals, snare drum, tenor drum, non-pitched metal such as cowbell and anvil, and a bass drum with a small cymbal at the foot pedal. Milhaud, like Stravinsky, also employed a five line staff for notating the percussion part. Although he did not include a diagram for the percussion set-up, it is customary to assemble the instruments similar to a drum set.

Due to Milhaud's fascination with multiple percussion, one of his next compositions was a concerto for a solo multiple percussionist, *Concerto pour batterie et petit orchestre* (1930). In the percussion part, Milhaud included a diagram to represent the percussion set-up, a significant event because it represented the first set-up diagram for a multiple percussionist. Two reasons for the diagram are that more instruments were involved than in his previous works, and the percussion playing requires a great deal of athleticism. Milhaud showed great forethought and concern for the player and realized that without the proper set-up an accurate performance would be difficult. The instruments required for the concerto are four timpani, tam-tam, two cymbals, tambourine, wood block, metal block (usually a cow bell), ratchet, castanets, triangle, suspended cymbal, bass drum and cymbal (both played by a single foot pedal as in *La création du monde*), snare drum, field drum, and tenor drum.
Béla Bartók, an admirer of Stravinsky, was also interested in the possibilities of percussion and especially in the combination of piano sonorities with percussion instruments. In the Sonata for Two Pianos and Percussion, two percussionists were called upon to play three timpani, xylophone, two snare drums, cymbals, suspended cymbals, bass drum, triangle, and tam-tam. Bartók used a five-line staff for the percussion parts and included a diagram of the set-up, including the placement of the pianos. Bartók was meticulous in his instructions to the percussionists concerning the methods of producing the desired sounds. In the score, Bartók wrote,

Play with the handle of one side-drum stick on the edge of the suspended cymbal while the other is fastened to the leather hanger of the cymbal so that its tip touches the cymbal . . . play with two side-drum sticks, beginning at the edge of the drum head, gradually moving to the center, and then back again to the rim. . . . ¹¹

The experimentation and creative use of percussion in these solo multiple percussion compositions by Stravinsky, Milhaud, and Bartók were influential for countless other multiple percussion solos, including Stockhausen's Zyklus (1959), and Dahl's Duettino Concertante (1966).

Karlheinz Stockhausen was born on August 22, 1928 in Modrath, a small town near Cologne. Simon Stockhausen and Gertrud Stupp, his father and mother, raised Stockhausen in an atmosphere of emotional tension.¹ Simon was a school teacher in a neighboring town, Reid, and was forced to be a member of the Nazi Party during the 1930's. Stockhausen's mother, a victim of nervous depression, entered a sanatorium in 1932. During the war his father was reported as missing or dead at the Hungarian front and his mother was put to death as an act of Nazi policy to relieve pressure on hospital accommodations.

Stockhausen began to study piano at the age of six and continued to study only the piano until he enrolled in 1941 at the Teacher Training College at Xanten on the lower reaches of the Rhine. At Xanten, he also learned the violin and oboe, and performed in the orchestra, band and jazz.

dance band. It was at this point that he developed an affinity and technique for jazz.²

In 1947 he made a living playing jazz and light music in clubs and also enrolled at the State Academy of Music in Cologne. It was at this school that he studied piano with Hans Otto Schmidt-Neuhaus (1947), harmony with Hermann Schroeder (1948), and composition with Frank Martin (1950).³

Music composer and critic Herbert Eimert and Stockhausen met in 1951 and the relationship between the two men was to have a great influence on Stockhausen. At the time, Eimert was in charge of a late night series on Cologne West German Radio that dealt with contemporary music. He arranged for the first public broadcast of a Stockhausen work, *Sonatine for Violin and Piano*, and allowed Stockhausen to broadcast many of his own contemporary music programs. Later, Eimert appointed him to a position in the electronic music studio of Cologne Radio and also introduced and persuaded him to become involved with the Darmstadt New Music Courses in 1951.

It was at Darmstadt that Stockhausen gained exposure to the music of Webern, Schoenberg, and the new generation

². Ibid.

³. Ibid., 5.
of serialist composers, most importantly being Karel Goeyvaerts, a student of Messiaen.

In 1952, a few months after he passed his secondary school music teacher state exams at Cologne, Stockhausen moved to Paris. In Paris, he studied with Messiaen, made contact with Boulez, and also became involved with Pierre Schaeffer at the musique concrète studio of the Paris Radio Station.

Stockhausen soon became involved with teaching new music, first with his lectures (1953), and then through his composition classes (1957) at the Darmstadt Summer Courses. In 1963 he founded the Cologne Courses for New Music, which later was renamed the Cologne Institute for New Music.

Besides teaching, Stockhausen began traveling abroad to give concerts and lectures and formed a group to perform his own works in 1964. In 1966, during a concert tour, Stockhausen realized a new work, Telemusik, in the electronic studio of Japan Radio at this time. The Japanese also were treated to performances by Stockhausen's group every day for six months during the 1970 Osaka World Fair.

Stockhausen Influences

In the final year of Stockhausen's formal education in Cologne (1951), a great deal of time was spent in the detailed analysis of works by several advanced composers, and
an emphasis was placed on the music of Schoenberg, Stravinsky, and Bartók. Bartók's *Sonata for Two Pianos and Percussion* was fascinating to Stockhausen in terms of rhythm, form, and the combination of piano and percussion sonorities. He wrote a detailed one hundred eighty-six page analysis of this piece for his final examination thesis. Bartók's use of quartal and parallel harmony and the expressive devices in his *Mikrokosmos*, such as clusters, and grace note figures, along with the pointillistic style of the Viennese school, influenced Stockhausen's early works.4

In that same year he became acquainted with Herbert Eimert, and this meeting (mentioned earlier in this chapter) was to have a profound effect on the young musician. Besides the great encouragement, Eimert exposed Stockhausen to a variety of music and musicians through the Darmstadt Summer Music Courses. It was in Darmstadt that he met his first main musical influence, a Messiaen student named Karel Goeyvaerts.

At this time, Stockhausen was more familiar with contemporary piano music than chamber or orchestral works. Disc recordings were scarce and the Cologne Radio Station played little twentieth-century music of consequence. Piano music was much easier to obtain and he could play the works on the piano for himself. This could perhaps account for

4. Ibid.
the prominent position keyboard instruments play in his music.

Goeyvaerts, while studying with Messiaen, had become involved in an in-depth study of the serial techniques of Webern. He had been attracted by the implications of comprehensive serialism in Webern's handling of pitch, intensity, register, and touch as independent variables. In his own compositions, Goeyvaerts also attempted to serialize time. Stockhausen was impressed with Goeyvaerts' ideas of serialization even though the musical expression in Goeyvaerts' works was not very appealing to him.

The summer of 1951 in Darmstadt also was Stockhausen's first exposure to the music of Messiaen. Messiaen's *Mode de valeurs et d'intensités* made such a strong impression on Stockhausen that in 1952 he moved to Paris in order to study with this master composer. Messiaen's teaching emphasized the analysis of rhythm in his own works, Mozart piano concertos, Gregorian chant, Indian music, music of the early Netherlanders, and also the music of Stravinsky, Debussy, and Webern.

While in Paris, Stockhausen came in contact with Boulez and Schaeffer, other influential composers living in


Paris in the 1950's. Paris was the center for early developments in electronic music. Musique concrète was concerned with the distortion and transformation of previously recorded sounds. At the Paris electronic studio, Stockhausen spent time analyzing percussion sounds, speech, and other noises. He would make tape loops of single sounds and listen to them for days on end. Stockhausen's first musique concrète work, Etude, was realized at this same studio in 1954. Schaeffer's "Paris concerts" in 1951-1952, emphasizing the spatial qualities in music, also led to some of Stockhausen's spatial concepts first seen in Gesang der Jünglinge.

The most radical developments in Stockhausen's musical thought came about due to the influence of Dr. Werner Meyer-Eppler. During his study with Meyer-Eppler in 1954, Stockhausen was exposed to new conceptual theories of time and information. These theories (to be discussed later in this chapter) were of monumental importance to Stockhausen's later compositions.

Jazz music and the big band sounds of swing also had an impact on Stockhausen's musical thought. His performance

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of and love for jazz developed in the jazz band at Xanten and in clubs around Cologne. Robin Maconie wrote the following pertaining to this jazz influence.

In jazz's free, accentual rhythms and intricate combinations of meters, its opposition of latent (frequently cyclical) formal rigidity and surface freedom, underlying continuity and outward elision and fragmentation, we may see elements of his own musical style. Even Stockhausen's serial method may have derived in part from analysis of the rhythmic divisions of time in the jazz classics.\(^9\)

A final consideration is Stockhausen's dislike of music with a periodic beat. This dislike may be seen as a reaction to some of his experiences during the war.

This periodic beat, which makes people march without knowing it . . . I am very sensitive to this because that was exactly the way the Nazis tuned in the whole population with marching music on the radio, and whether it's marching music, pop, or even a rock beat, I don't like it. I prefer Balinese music or the more refined African music, where you feel a basic rhythm, but the individual players are floating freely.\(^10\)

**Stockhausen's Style**

Stockhausen's early compositional period demonstrates his newly acquired concepts of serialism and shows the strong influence of Messiaen. *Kreuzspiel* for oboe, bass clarinet, piano, and percussion (1951) is listed as Stock-

\(^9\). Maconie, *op. cit.*, 58.

Kreuzspiel (Crossplay) is a pointillistic work in which all the parameters, except timbre, are treated in a serial manner. The strongest influences of this piece were Messiaen's *Mode de valeurs et d'intensités* and Goeyvaert's *Sonata for Two Pianos*. Like his teacher, Messiaen, Stockhausen took a serial approach to this composition in which each note, duration, and dynamic follow an overall separate set of instructions. The pitches and durations, coupled together, are presented in a sparse pointillistic texture similar to Webern. The cross register play of the piano reflects the *Sonata for Two Pianos* by Goeyvaerts, while the high drum pattering shows an influence of Indian music (which he studied with Messiaen).\(^\text{11}\)

Although form in the music of Stockhausen was always of great importance, in Kreuzspiel he was mainly concerned with content and not a standard formal outline. He classified this work as having a "special serial form," whereby the rows determining pitch and duration differ. The formal unity is created by the equal proportions of these parameters. The formal outline contains three main sections. The opening musical idea is stated and then played in retrograde in the first section, while the second section undergoes a

\(^{11}\) Maconie, *op. cit.*, 26.
process of playing the first section "inside-out." The third main section is a combination of ideas from the first and second section.

Robin Maconie felt that Stockhausen's jazz influence could be related to the style and expression in Kreuzspiel:

... Stockhausen may be aiming at the effect of a jazz ensemble "break," though without jazz's basic framework of repetitive patterns over a regular beat. But to evoke jazz's sense of communal excitement in the traditional concert environment was no easy task. Classically-trained performers were not then used to listening to one another, nor to playing conversationally, adopting the oral culture of the jazz musician while still retaining the articulate skills of manuscript culture.12

The piano plays the prominent role (as in many of his works) in Kreuzspiel with the winds acting as alternative rather than equivalent voices. The percussion articulates the pulse and duration relationships expressed in the piano and winds, and elaborates the basic structure by combining the secondary rhythm patterns with the principal patterns at the important structural points.13

Spatial considerations become important as seen in the placement of the instruments on the stage. The tom-toms are placed on the side of a lidless piano, so close in fact,

12. Ibid., 22.
13. Ibid., 23.
that the drums evoke sympathetic vibrations and reverberations from the piano.

The next phase of Stockhausen's career (1952-1953) consists of three works, Kontra-Punkte, Piano Pieces I-IV, and Electronic Study I. Stockhausen continues to develop his "pointillistic" serial style in combination with "group" style and also attempts to extend his serial methods to include timbre and tempi. A "group" can be described as a series of pitches that have a longer-sustained identity and more component parts. The "groups" are perceived as units and these larger units make up what could be understood as a musical idea--several components making up one entity of unified character.\footnote{Harvey, \textit{op. cit.}, 21.}

Kontra-Punkte, a representative work from this period, marks a true development in Stockhausen's serial methods. The unit of organization is not just the single tone, but includes other factors such as elaborate strings of notes, dense chords, "groups," and lengthy tempo-defined sections.

Stockhausen's first attempt to serialize timbre is evident in this work, even though he later decided the attempt was futile. He chose ten instruments and grouped them together according to timbral similarity. The groups are: 1. flute/bassoon, 2. clarinet/bass clarinet, 3. trum-
pet/trombone, 4. violin/cello, 5. piano, and 6. harp. Even though he dealt with the distribution of materials played by the instruments in a systematic way, he was disappointed in realizing that it was impossible to change the inherent timbres of each instrument. Stockhausen also felt that any attempt to establish proportional relations between naturally determined instrumental timbre was impossible.\textsuperscript{13}

Form is once again an important consideration for Stockhausen. This work consists of 46 sections, each with a different tempo mark. The tempi are selected from a tempo scale of seven steps and this use of a tempo scale fore-shadows his later serial use of tempo. The basic formal idea of Kontra-Punkte is a one-dimensional development marked by reduction. The six instrumental groups systematically drop out until the piano remains alone. The dynamic levels also reduce and finally merge into "pp." The great variety of durations also reduce and merge into durations of medium lengths.

The music presented great technical problems for the performers. These problems were so great that Stockhausen needed to change various tempi in order to make the parts playable. The piano part presented such technical problems that some of the performances of the work had to be can-

\textsuperscript{13} Heikinheimo, op. cit., 21.
celled due to the inability of the pianist to perform the written part.

During the period from 1954 to 1959, Stockhausen's musical thought was preoccupied with the relationships between pitch and time. After studies with Dr. Werner Meyer-Eppler at Bonn in 1954 and his own experiments with electronic music, Stockhausen sought to integrate the systems of measurement for pitch and time. He was becoming impatient with the lack of movement in pointillistic music and felt a pressing need to reconcile the relationships between pitch and time in a scientific manner. He was fascinated by the electronically demonstrable continuum between frequencies perceived as rhythm (sine waves of up to 20 cycles per second) and higher frequencies which are audible as pitch.\footnote{Maconie, \textit{op. cit.}, 90.}

The representative works from this period that relate to this study are: \textit{Zeitmasze}, \textit{Gesang der Jünglinge}, \textit{Klavierstück XI}, and \textit{Gruppen}. \textit{Zeitmasze} (1956) for flute, oboe, clarinet, English horn, and bassoon is a serial work containing freedom of tempi. The form bridges the extremes between synchronized tempi and simultaneous non-synchronized tempi. The five instruments play together, each having a set of different instructions in regards to tempo. Metronome markings are included along with directions such as:
"as fast as possible," "as slow as possible," "fast-slow down," and "slow-get faster." The resulting counterpoint displays a fine balance of unity (repetition of shapes, dynamic patterns, and rhythms) and variety (irregularity and musical "surprises"). Stockhausen was making an attempt at indeterminacy but was not yet able to graphically represent it on paper. The performer's role of interpreter, as well as executant, was taken into account in terms of the overall form.

**Gruppen** (1955-1957) represents a new development in "instrumental spatial music." Three orchestras, forming a semicircle around the audience, perform music associated with "group" structures rather than single notes. The "groups" are longer units that may be simple or very complex, but have overall identities and act as entities. The orchestras (conducted by three conductors) play simultaneously, but are constantly shifting so that sometimes they are synchronized and sometimes independent. The pitches and tempi are serialized, but Stockhausen's main concern was the spatial character in the resulting music.

**Gesang der Jünglinge** (1956) is another work concerned with the spatial aspect of music. This work for five loudspeaker groups combines unstructured material such as noise and sine tones with a recording of a boy singing the

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17. Harvey, *op. cit.*, 50.
Songs of the Youths in the Burning Fiery Furnace (Book of Daniel, Chapter 3). All the sounds are electronically varied and spatially distributed through the speakers in a serial manner. The sounds may emanate from any speaker and move between the speakers, sometimes moving clockwise or counter clockwise. All of the aspects of spatial distribution of sounds are of importance to the form of this work.

Klavierstück XI (1956) marked a turning point in Stockhausen's concept of form, whereby the responsibility of form was assigned to the performer. The piece consists of nineteen length-related groups of notes distributed on a single sheet of paper. The performer is instructed to glance at random from one "group" to another with no preconceived order. In this variable form, the performer not only chooses the "group" order, but also the tempo, dynamic, and type of attack. Specific directions are written at the end of each "group" concerning the tempo, dynamic, and attack to be used on the next "group," which is arbitrarily chosen. Specific instructions also pertain to the second performance of a "group." The completion is marked with the third performance of any "group." Because of the randomness of choosing "groups," some may be played only once or perhaps not at all. Obviously, each performance would present a different overall form. Stockhausen said that this piece should be played at least twice during a given concert.
The role of the performer now encompasses that of executant, interpreter, and improviser. The variable form is a result of the spontaneous selection or improvisation of the "group" order. However, the common performance practice of Klavierstück XI has not followed Stockhausen's most important instruction. This instruction says that the performer is to look at the score without any preconceived plan, choose from one "group" and then another, as the performance continues. Most of the performers of this work, including David Tudor (known for performances of new music and his close association with Stockhausen), chose their version before the performance. The performers felt that when the form was preconceived and practiced, they could perform a more accurate and more fluent version without drastically affecting the audience's experience. Stockhausen was somewhat upset after realizing the result of his new concept, but continued to develop his ideas and devised another new formal concept called multivalent form in his next major work, Zyklus.

Ingolf Dahl

Ingolf Dahl was born Walter Ingolf Marcus on June 9, 1912 in Hamburg, Germany as the eldest son of Paul Philip Benjamin Marcus, a well-to-do lawyer, and Hilda Dahl Marcus. Although he experimented with several names including Ingmarc, he finally dropped the name "Marcus" and
substituted his mother's maiden name "Dahl". Ingolf Dahl legally changed his name in Los Angeles in 1942.18

Dahl received his first musical training at home on piano by Walter Marcus, his uncle, and Frau Holle, a local piano teacher. By the age of twelve his gifts, which included the facility of absolute pitch, were quite exceptional. Edith Weissmann, a noted pianist and harpsichordist, next taught Ingolf piano, music theory, and music history. At seventeen, Dahl made his debut piano recital at the Musikhalle in Hamburg. His original composition, Musik fur zwei Klaviere, was performed with Mrs. Weissmann, but unfortunately the score was eventually lost.

In 1931, Dahl studied composition with Philip Jarnach and conducting with Hermann Abendroth at the Hochschule fur Musik in Cologne. Later he attended the Zurich Conservatory, where he studied with Dr. Volkmar Andreae and Walter Frey. During 1933-1938 Dahl studied art history at the University of Zurich and became the conductor of the Zurich Municipal Opera. Besides being a conductor, he also was a featured piano soloist with orchestras in Zurich, Bern, and Cologne, and presented solo piano recitals in several other European cities.

The growing threat of Hitler and Nazi encroachment caused many creative artists to flee Europe in the late

1930's. Dahl left Europe for the United States in 1938 because of this threat and because his bride-to-be, Etta Gordon, lived in Los Angeles. Miss Gordon, a professional dancer, met Dahl while both were performing in a cabaret production in Zurich (1933).\textsuperscript{19}

After moving to Los Angeles, Dahl composed and arranged music for radio and films and became a piano accompanist for several artists, most notably, Gracie Fields. Although his peers expected him to pursue a career in the more lucrative commercial music field, Dahl also spent a great deal of time composing "serious music." The commercial music was eventually abandoned in order to concentrate fully on his "serious" compositions.

Dahl became a mainstay as conductor and performer at the "Evenings on the Roof" concert series and its successor, the "Monday Evening Concerts." These concert series began in 1939 at a remodeled home on Micheltorena Street in Los Angeles and moved to the Assistance League Playhouse in 1942.\textsuperscript{20} It was here that Dahl premiered works by Copland, Diamond, Foss, Ives, Piston, Ruggles, and himself. He also introduced important European compositions to the West Coast such as Schoenberg's \textit{Pierrot Lunaire}, Hindemith's \textit{Marien-}

\textsuperscript{19} Ibid., 12-13.

\textsuperscript{20} Ibid., 19-20.
leben, Berg’s Chamber Concerto and Altenberg Lieder, and Stravinsky’s Les Noces and Persephone.

In 1945, Dahl joined the faculty of the University of Southern California, where he taught until his death in 1970. His duties included conducting the orchestra, teaching conducting, lecturing on music history (especially on the Classical period and music of Stravinsky), and teaching composition (somewhat against his wishes). He also pioneered performances of early music with the collegium musicum, which he founded and directed.

Among numerous awards, Dahl received two Guggenheim Fellowships, two Huntington Hartford Fellowships, an award from the National Institute of Arts and Letters, and various commissions from the Louisville Orchestra, the Fromm Foundation, and Benny Goodman. Dahl also became involved with various music festivals including Ojai and Tanglewood and toured Europe on a sponsorship by the State Department (1961-1962).

Ingolf Dahl died of respiratory problems while on a sabbatical leave in Frutugen, Switzerland, on August 7, 1970.

Dahl Influences

At the Zurich Conservatory, Dahl studied with Dr. Volkman Andreea and Walter Frey. Andreea was important for

\[21\] Robert M. McCormick, "Duettino Concertante by Ingolf Dahl," Percussionist XIII/1 (Fall 1975), 14.
his influence on the musical breadth of Dahl by promoting Zurich as an international music center, thereby attracting a wide variety of quality performers involved with various genres and musical styles. Dahl cited Walter Frey as one of his most important influences in his early life. Frey, his piano teacher, was intensely involved with contemporary music and exposure to this music had a tremendous impact on Dahl.

The early stage of Dahl's musical career was greatly influenced by the atonal expressionism of the Viennese school, namely Schoenberg, Berg, and Webern. Dahl translated Schoenberg's *Pierrot Lunaire* at the composer's request, and performed this work on the "Evening on the Roof" All-Schoenberg Concert (December 18, 1944). Dahl studied Schoenberg's compositional style and was responsible for making a series of musical alterations of the vocal part of *Pierrot Lunaire*. The alterations, which enabled the vocal part to adapt to an English text, were approved by Schoenberg. Although Dahl was deeply influenced by the expressionistic character of the Viennese school, he never totally embraced the concept of atonality in his own compositions.²²

²² Berdahl, *op.cit.*, 207.
to the United States provided him with new experiences and influences. In 1942, he met Igor Stravinsky, who was to have the greatest influence on Dahl's future works. The two became friends and for many years Dahl studied Stravinsky's works. Dahl wrote many articles and program notes on the music of Stravinsky, taught a class at U.S.C. dealing with Stravinsky's music, and at Stravinsky's request, wrote piano arrangements for some of his orchestral works, most notably the two piano version of Danses Concertantes (1942).

Dahl's compositions after 1944 displayed many of Stravinsky's Neo-Classical concepts. In the period from 1944-1952 his compositions showed an increase in the clarity of the formal structure and texture, importance of tonal relationships, a decrease in the severity of dissonance, a trend toward diatonicism, and a pronounced interest in timbre and virtuosity. Some of Dahl's most important pieces associated with Stravinsky influences are Allegro and Arioso for five wind instruments, the Saxophone Concerto, Fanfares, and Sinfonietta for concert band. In 1949 Dahl stated that Stravinsky was the greatest contribution to modern musical culture.\(^2\)\(^3\)

In 1944 Dahl attended several master classes in Los Angeles with one of the most influential composition teachers of the twentieth century, Nadia Boulanger. Ms.

Boulanger's teaching methods concentrated on counterpoint exercises and the analysis of music of all periods. She was an expert on the music of Stravinsky and Fauré and influenced many composers of note such as Copland, Piston, Berkeley, Harris, and others. Boulanger's great knowledge about Stravinsky impressed Dahl, but he was equally impressed by her great knowledge of all eras. This inspired Dahl to study a great variety of music besides the contemporary styles with which he was so familiar. In 1945, when he joined the faculty of the University of Southern California, he used this opportunity to broaden his spectrum of musical knowledge.

American folk music, jazz, and some contemporary American composers also influenced Dahl's musical compositions. He championed the compositions by Ives, Copland, Foss, Ruggles, and others through his many "Evening on the Roof" and "Monday Evening Concerts". The use of jazz and other American elements in the music of Copland and Ives influenced Dahl greatly. Jazz elements are quite apparent in his Saxophone Concerto, Music For Brass Instruments, and the works commissioned by Benny Goodman, Symphony Concertante for two clarinets and orchestra. Dahl also composed The Fancy Blue Devils Breakdown, a piece for two pianos—eight hands, based on American folk tunes.

Dahl was asked to write an article that would list works that he felt were neglected in terms of frequency of performances. The works listed were Stravinsky's *Symphony for Wind Instruments*, Janacek's *Sinfonietta*, Satie's *Socrate*, Hindemith's *Das Unaufhörliche*, Piston's *Concerto for Orchestra*, Ives' *Third Violin Sonata*, Busoni's *Improvisation on a Bach Chorale*, Diamond's *Chamber Concerto*, Berg's *Wozzeck*, and Copland's *Short Symphony*.

**Dahl's Style**

Ingolf Dahl's compositional style is generally divided into four main periods, beginning with the early works of dissonant chromaticism (1933-1942). Works in this period generally were compositions of free dissonant counterpoint within an advanced polyphonic style. *Three Songs to Poems by Albert Ehrismann* (1933) represents an early composition in this chromatic and intensely dissonant style. The tonal relationships within the work are obscured by the use of quartal and chromatic harmony, and free atonality.

The texture of the works from this period have occasional sections of homophony, but are generally polyphonic and often quite complex. One compositional trait that

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emerges in this period is Dahl's treatment of rhythm and meter. He was fond of frequently changing metrical structures and of using numerous cross-rhythms. In the Three Songs, he composed sections with measures of unequal length without notating the changing meter signatures. In most cases he notated the changing metric signatures. He also commonly omitted bar lines from cadenza-like passages.

Much of Dahl's music contains the use of cross-rhythms which are frequently achieved by simultaneously notating triple and duple divisions on different parts of the pulse. Another of Dahl's compositional techniques to achieve this effect was the combination of two metrical signatures. In the Suite for piano, the left hand plays in 4/4 time while the right hand plays in 6/8.

Allegro and Arioso (1942), Dahl's earliest chamber work, is not only a work that culminates the early period; it also foreshadows musical traits that occur in his later works. The chromatic dissonance of his early works is now much less severe. The emphasis on clarity of texture and formal structure becomes an important concern for Dahl. The textures in his music after this point are normally much more transparent. The influence of Stravinsky can also be seen in the many passages of asymmetrical rhythms and irregular accents. From this point Dahl's forms become more easily identifiable. When he started a new composition, he always decided on the form before he would start to sketch
any musical themes. Allegro and Arioso also foreshadows two other compositional traits in the later music of Ingolf Dahl. The emphasis on idiomatic virtuosic solo writing became a trademark, especially in his chamber works. Also, the use of serial techniques first appears in the opening twelve-tone flute solo of the "Arioso" movement.

The second period of Dahl's compositions (1944-1952) again demonstrates the great influence of Stravinsky and to a lesser degree, jazz. This Neo-Classical period contains works with an emphasis on tonal relationships, clarity of form and texture, and virtuosity. Key signatures are the rule in these tonal and predominantly diatonic works. The relationships of tonalities are emphasized, and the rare use of dissonant chromatic and free atonal passages tend to be surrounded by tonal sections. In this period, Dahl makes excellent use of typical twentieth-century materials (polychords, clusters of seconds, and shifting rhythms) within the clear framework of Classical style.

The primary characteristics of the textures of this period (monophony, homophony, and polyphony) are clarity and transparency. A trend toward economy of thematic materials also begins with the music of this period. One example of this economy can be seen in Concerto a Tre for clarinet, violin, and cello (1947) a work entirely derived from a single six-note motive.
The influence of Stravinsky and American jazz are especially evident in Dahl's treatment of rhythm. The intensely syncopated rhythms of jazz and the asymmetrical rhythms of Stravinsky are important factors in *Toccata and Arioso* (1942), *Music For Brass Instruments* (1944), and *Concerto* for alto saxophone (1949). Benny Goodman was so impressed by this rhythmic style that he commissioned Dahl to compose *Symphony Concertante* for two clarinets and orchestra (1952).

Another general characteristic of Dahl's compositional style which was fully developed in this period is his virtuosic instrumental writing. The title of many of his works are derived from the term "concertare" (*Concerto a Tre, Symphony Concertante, Elegy Concerto*, and *Duettino Concertante*), where he is concerned not only with the exploitation of the technical possibilities of solo instruments and groups of instruments, but also their sonorous effects.²⁶

Dahl's third period (1953-1961) may be viewed as a transitional period in which there was a gradual turn toward the use of serial techniques as a unifying device within the framework of tonal music. *Sonata Seria* (1953) and *The Tower of Saint Barbara* (1954) are not entirely serial, but the cyclic use of the thematic material serves the purpose of

unification. The Tower of Saint Barbara is a work in which a plainchant cantus firmus serves as a unifying device in all four movements. The second movement does include a twelve-tone row which is treated in a serial manner. The Piano Quintet (1957) also included serial techniques in which large structures were held together by tonal and motivic relationships, and complex harmonic forces.27

The synthesis of Dahl's serial techniques and tonal materials can be seen in Sinfonietta for concert band (1961). This work is characteristic of his later compositions whereby a tone row (in this case, a hexachord) is utilized melodically, harmonically, and structurally in a consonant, mostly diatonic tonal idiom.

The compositions from Dahl's fourth period show a synthesis of serially-organized tonal chromaticism and harmonic direction. He constructed twelve-tone rows which would contain the greatest number of harmonic implications and would then exploit the resulting harmonies. Dahl's first work based on a complete twelve-tone series was the Piano Trio (1962). This work and the Neo-Romantic Aria Sinfonica (1965) used quintally-constructed tone rows. These pieces both centered around the harmonies created by dividing the twelve-tone row into groups of four notes.

These harmonies and resulting tonalities were the basis for the entire composition.

The texture for most of Aria Sinfonica is more dense than most of Dahl's works, but contains sections of transparent, almost pointillistic textures. However, even the most chromatic and dissonant passages in his later works retain a sense of textural clarity. After 1965, Dahl became involved with various chamber instrumentations, more compact forms, and a further emphasis on the idiomatic and virtuosic qualities of instruments used individually and in combination.

Halsey Stevens gave a summary of Dahl's music when he said:

Whatever its other merits (and there are many), Dahl's music convinces by its absolute honesty, its freedom from faddism, its unshakable logic, its concern for enduring values; at the same time it is invested with a wit that often borders on irony. In a way, it is like Dahl himself, never content with approximations, seeking always the one right word.²⁸

Zyklus No. 9 (Cycle), composed by Karlheinz Stockhausen for the percussionist Christoph Caskel, first appeared as a test piece for the Kranichstein Music Prize for percussion players in 1959. Caskel premiered the work on August 25, 1959, at the International Summer School for New Music in Darmstadt, West Germany. Stockhausen dedicated Zyklus to the director of the school, Wolfgang Steineke. Steineke, a long time friend and supporter, employed Stockhausen as a faculty member at the school and encouraged him to compose music for percussion.

The score consists of sixteen spiral-bound sheets of paper, each of which (except the last) represents one of seventeen equal time periods. Placed in a circle around the performer, the score may be positioned with either long edge up and read in a clockwise or counter clockwise direction. As the performer reads in a clockwise direction, the notation becomes more indeterminate; a counter clockwise reading shows the notation gradually shifting towards determinacy. The performer may choose any starting point and direction in which to read the score, but must continue around the circle until the original starting point is again...
reached. Periods one and seventeen (on the same page) represent the opposite ends of the spectrum of notation, but this seam in the cyclic progression, designed to be aurally unnoticed, does not break the seemingly continuous cycle for the listener.

Stockhausen included three types of percussion instruments in Zyklus—metal, wood, and skin (membranophones). He also made the distinction between instruments of determinate pitch, indeterminate pitch, and those that made noise. The instruments are listed in the appropriate category below:

**Metal**
- Determinate pitch—vibraphone
- Indeterminate pitch—cowbells (4), gong, triangles (2)
- Noise—cymbals (2), tam-tam, jingles

**Wood**
- Determinate pitch—marimba
- Indeterminate pitch—slit drums (2)
- Noise—guero

**Skin (membranophones)**
- Determinate pitch—tom-toms (4) played on skin
- Indeterminate pitch—side drum
- Noise—tom-tom (played on rim), side drum roll

An instrument placement diagram (present in the auxiliary notation) shows that the proper placement of the instruments form a circle around the performer. The sixteen spiral-bound pages must be separated and placed in relationship to the instrument placement. Figure 1 illustrates the placement of instruments and music. Note that pictographs
represent the instruments and numbers represent the actual periods in the composition.¹

Figure 1. *Zyklus* set-up diagram.

The performer's movement around the instruments is synchronized to the circular reading of the score in such a way that reading in a counter clockwise direction results in the progressive inclusion of attacks on instruments that lie to the performer's left. A continual shift to the right would result in a clockwise reading.²

The notational framework in *Zyklus* consists of a five-line staff, extended stave, single line and space, and graphic settings. Instead of the traditional use of notes, Stockhausen employs noteheads without stems and various


graphic illustrations. Pictographs are used to designate sound sources, striking implements, and sound production techniques.

Stockhausen explained Zyklus in this way:

In Zyklus (for one percussion player), the predominantly static open form of Klavierstuck XI—where all depended on the instantaneousity of random glance—is cojoined with the idea of a dynamic, closed form; the result is a circular, curvilinear form. The piece is written on 16 spiral-bound sheets of paper; there is no beginning and no end; the performer may begin with any page, but must then play a cycle in the stipulated page-sequence; the stands within a ring of percussion instruments and during the performance turns full circle—in terms of the principle positions he takes up—either clockwise or anti-clockwise, according to the direction in which he is reading the score. Fields containing points and groups are distinguished by differing degrees of combinatorial potential; in the sequence it was composed, they mediate continuously between the wholly determinate and the extremely free; the structure having the greatest degree of freedom—the extreme point of “instantaneity”—is formed in such a way that it might well be taken for the extremely determinate structure that immediately follows it. Thus a temporal circle is experienced in which one does in fact have the constant impression of moving towards greater freedom (clockwise) or greater determinance (anti-clockwise), whereas at the critical point of contact between the extremes the one breaks into the other unnoticed.³

Each of the seventeen periods in the piece contains a grid of thirty equal time units. The duration of each time

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unit must be determined by the performer (one second, four seconds, etc.) and adhered to consistently throughout the work. Each particular sound, graphically illustrated by dots or horizontal line-forms, shows duration in terms of placement and relationship to the time units. The thickness of a dot or line-form signifies the relative dynamic level required.

A series of nine structure types varying from determinate to indeterminate notation appear throughout the score of Zyklus. Neil DePonte offers a very concise analysis of each structure type. These structure types are shown in Examples 1 through 9. Note that DePonte refers to single attacks as points and multiple attacks as groups.

Structure number one is the time grid itself and all attacks must be played with reference to it. This may include non-staved grids above and below it which are used to indicate the use of different instruments. This is the most fixed structure.

Example 1. Zyklus, Structure One.

\[
\begin{array}{cc}
\text{Example 1. Zyklus, Structure One.} \\
\end{array}
\]

Structure number two consists of bracketed staves drawn above or below the time grid and corresponding with it in terms of elapsed time. Here the performer must choose one bracket for performance and adhere to entrances within the brackets according to the time grid. This introduces the element of choice into the work.
Example 2. Zyklus, Structure Two.

Structure number three is triangles. They are connected to the time grid by lines running from various points on the grid to the tip of the triangle and corresponding in number to the number of groups or points within the triangle itself. The groups within the triangle can be played in any sequence but each can only be played at the point on the grid where a connecting line from the triangle touches it.


Structure number four consists of rectangles drawn above the time grid and connected to the grid at both ends. Within these rectangles are notes that should be played as fast as possible on each of the notated instruments. They should be regarded as shapes (shapes being more organized than single notes or unconnected points) and should be folded into the time grid in any order or even simultaneously throughout the length of
the rectangle in such a manner as to show more randomness in the time between entrances than was apparent in structure number three.

Example 4. *Zyklus*, Structure Four

![Diagram of Structure Four]

Structure number five is the same kind of rectangle as structure number four and should be played in the same manner... These structures or points give the impression of greater randomness especially when they are either accelerated (/) or decelerated (\) during their performance.


![Diagram of Structure Five]

Structure number six consists of groups or dots within two rectangles drawn one above the other connected by a double headed arrow. These should be performed as the other rectangular structures with the exception that a group or a dot from one rectangle should be followed by a group or dot from the other.

Structure number seven consists of widened rectangles containing groups and dots. The procedure is the same as for normal rectangles with the exception that the 'reservoir' of available instruments increases during the period of time that the shape of the rectangle increases, and only during the period of time, as indicated by dotted lines from the expanded rectangle to the time grid.

Example 7. Zyklus, Structure Seven.
Structure number eight consists of bracketed rectangles drawn above and below the time grid. The procedure is the same as for single rectangles, but the performer has to choose only one of the rectangles in any given performance.

Example 8. *Zyklus*, Structure Eight

Structure nine, the most random structure, is the dots without stave lines for the four tom-toms. The distribution of the points is determined statistically (or is structured) by their density (speed) and thickness (intensity). The pitches are free and the intervals of entry, taking into account density, are relatively free.¹

¹ Neil DePonte, "No. 9 Zyklus: How and Why," *Percussionist* XII/4 (Summer 1975), 140-141.

Besides being cyclic, another important concept governing form is the serial mediation of several parameters of the music. These parameters include the durations of tones on each instrument, entrance intervals between instruments, use of structures to form a constantly shifting progression toward determinacy or indeterminacy, the choice of pitches, and the entrance intervals between each of the structure group types. Scott Shepherd wrote about *Zyklus* in this way:

Rather than maintaining the usual static formal structures and varying the content within it, the reversal of these traditional roles in *Zyklus* results in fairly static sound elements presented in continually variable structures by means of constant shift in notational function. Instead of concentration on a single point along the continuum of explicit/implicit notational directions, Stockhausen's goal in *Zyklus* is the joining of both ends of that continuum to form a continuous circle that serves as a vehicle for the simultaneous mediation of both clear and ambiguous musical thought.

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5. Ibid., 139.

Zyklus is divided into two half cycles of nine periods each. Within this form appear nine "action cycles" of regular frequency. The beginning of each "action cycle" (determined by mathematically deduced "entrance interval") represents that entrance of a new color in timbre. Each cycle begins with a low point of activity, accelerates to a high point and decelerates again. The overlapping of cycles (colors of timbre) becomes clear in the following chart (Figure 2).

![Figure 2. Chart showing overlapping cycles in Zyklus.](image)

The following charts show the occurrence and duration of structure types (Figure 3) and the frequency of contrasting structure and sound source types within each period.

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(Figure 4). Through the constantly shifting structure types, Stockhausen varied the notational function from determinate to indeterminate and provided a built-in control for the parameter of timbre.⁸

<table>
<thead>
<tr>
<th>Periods</th>
<th>Structure-types</th>
<th>Durations of each Structure-type</th>
<th>Relative Proportions of Structure-types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>30</td>
<td>(1 : 2)</td>
</tr>
<tr>
<td>2</td>
<td>2 1</td>
<td>10 ÷ 20</td>
<td>(1 : 3 : 2)</td>
</tr>
<tr>
<td>3</td>
<td>3 2 1</td>
<td>5 + 15 + 10</td>
<td>(2 : 4 : 3 : 1)</td>
</tr>
<tr>
<td>4</td>
<td>4 2 3 1</td>
<td>6 + 12 + 9 + 3</td>
<td>(4 : 3 : 1 : 5 : 2)</td>
</tr>
<tr>
<td>5</td>
<td>5 3 1 4 2</td>
<td>8 + 6 + 2 ÷ 10 + 4</td>
<td>(4 : 3 : 1 : 2)</td>
</tr>
<tr>
<td>6</td>
<td>3 4 2 5</td>
<td>12 + 9 + 3 + 6</td>
<td>(3 : 1 : 2)</td>
</tr>
<tr>
<td>7</td>
<td>4 5 3</td>
<td>15 + 5 + 10</td>
<td>(1 : 2)</td>
</tr>
<tr>
<td>8</td>
<td>5 4</td>
<td>10 + 20</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6 5</td>
<td>18 + 12</td>
<td>(3 : 2)</td>
</tr>
<tr>
<td>11</td>
<td>7 6 5</td>
<td>10 + 5 + 15</td>
<td>(2 : 1 : 3)</td>
</tr>
<tr>
<td>12</td>
<td>8 6 5 7</td>
<td>9 + 3 + 6 + 12</td>
<td>(3 : 1 : 2 : 4)</td>
</tr>
<tr>
<td>13</td>
<td>9 5 8 6 7</td>
<td>6 + 2 + 10 + 4 + 8</td>
<td>(3 : 1 : 5 : 2 : 4)</td>
</tr>
<tr>
<td>14</td>
<td>9 7 8 6</td>
<td>3 + 6 + 12 + 9</td>
<td>(1 : 2 : 4 : 3)</td>
</tr>
<tr>
<td>15</td>
<td>8 9 7</td>
<td>5 + 10 + 15</td>
<td>(1 : 2 : 3)</td>
</tr>
<tr>
<td>16</td>
<td>9 8</td>
<td>12 + 18</td>
<td>(2 : 3)</td>
</tr>
<tr>
<td>17</td>
<td>9</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3. Chart showing occurrence and duration of structure types in Zyklus.⁹

⁸. Shepherd, op.cit., 118.

The number nine holds a great significance to the overall form of Zyklus. In Zyklus, there are nine structure types, nine action cycles, and half cycles of nine periods each. It is also interesting to note that Zyklus' opus number is nine.

Performance Problems

The performance problems in Zyklus are numerous and include such matters as instrument choice and placement, striking implements, performer's movements, score preparation, playing techniques, and even attire.

The first consideration is the choice and placement of equipment. Despite the fact that Stockhausen provides a

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10. Shepherd, op. cit., 118.
set-up diagram, a number of options are available to the performer. It is necessary to choose a group of instruments that will form a cohesive unit. The groups of graduated instruments (cowbells, tom-toms, log drums) should maintain a consistent timbre and be placed in such a manner that the performer can play each instrument comfortably.

For this performance, only one triangle and one guero are included in the set-up. The triangle is placed to the right of the hi-hat and the guero is attached to a cymbal stand and placed to the right of the log drums. The tambourine, instead of being set to the left of the marimba, is also attached to the guero stand and sits below the guero and just above the marimba. One important consideration concerning instrument placement is that all instruments must be within reach while the performer keeps one foot on the vibraphone pedal. The tambourine could not be reached when placed to the left of the marimba, but was easily reached when placed over the center of the marimba. Although Stockhausen suggested that more than one triangle or guero may be used to make some of the passages easier, it is not necessary. The motions by the percussionist provide the audience with visual excitement, and if they were drastically reduced by the incorporation of several gueros or triangles, visual effectiveness would be lost.

The striking implements used in this performance are snare drum sticks, a pair of medium hard rubber mallets with
fiberglass handles, and a pair of yarn mallets with rattan handles. The snare drum sticks are placed on the flat stand that holds the log drums. The two pairs of mallets are placed on the right side of the flat stand for the cowbells.

In order to perform the piece effectively, it is essential for the performer to solidify the thirteen separate instruments into one. Max Neuhaus, an important early performer of Zyklus, stated:

"This solidification of the thirteen instruments into one is largely something that occurs in the performer's mind: he begins to think of the vibraphone or drums not as individual instruments, but as different areas or "notes" in the color scale he has available to him."

Once the instruments are set in a desired way, the performer must study the pictographs. Although the pictographs can be memorized independently of the music, it is much more valuable to associate a particular pictograph with the action required to ensure proper execution. By practicing the proper technique on the proper sound source with the proper striking implement, the performer may begin to digest and memorize the pictograph's function.

One of the most important performance considerations associated with Zyklus is preparation of the score. As noted earlier, Stockhausen stipulated that the performer

choose the starting point of the performance and the
direction (clockwise or counter clockwise) in which to read.
This performance begins with the first time unit on page
seven and is read in a clockwise direction. The performer
also is to choose the duration of the time unit, which
should stay consistent throughout the performance. In an
1985 interview Stockhausen stated that a good length for a
performance would be approximately twelve minutes, and
therefore, the time unit would be equal to \( MM = 40 \).\(^{12}\)
Stockhausen also recommended the use of sound reinforcement
for performances of Zyklus. When he supervises a perfor-
mance, four microphones are placed at the four corners of
the set-up and speakers are placed in the four corners of
the concert hall. Not only does this help the audience hear
the sounds from the percussionist's encircled perspective,
but it also enhances the resonance of sounds by connecting
them more effectively in time. After much experimentation,
the duration of the time unit chosen was two seconds
because the most difficult passages required at least two
seconds per time unit. If the time units were longer than
two seconds, the performance might lose some of its effec-
tiveness.

\(^{12}\) Michael Udow, "An Interview with Karlheinz Stock-
hausen," *Percussive Notes* XXII/6 (September 1985),
18.
Although Stockhausen originally stipulated that the performers choose the "groups" or "points" in each structure at random, most performers have decided to make these decisions before the performance. Christoph Caskel and Max Neuhaus "composed" and memorized fixed versions of Zyklus to ensure a more musical and confident performance. Stockhausen recently suggested that the performer cut out the mobile elements of the score and paste them above the time line. This fixed version should then be rehearsed for several months and memorized. Since each of the structure types presents the performer with a different set of choices, it is essential that each structure be studied and understood before a fixed version can be adequately formed. For this performance, the score was manipulated by the use of three transparent marking pens and a black fine point felt pen. The transparent pens, each of a different color, help to clarify the structures by highlighting and connecting "groups" and "points" and by highlighting striking implements.

Some of the "points" and "groups" in the structures were chosen at random. Others were chosen carefully in order to combine several sounds into musical phrases. One example of this occurs in the widened rectangle on page fifteen. The four tom-tom "points" are each written with a different degree of intensity. The "points" were chosen in
order from softest to loudest. The result is a phrase containing a crescendo.

Once a structure has been predetermined, the performer must practice it slowly, making sure to adhere to the appropriate dynamic, technique, tempo, and striking implement. Each structure, practiced separately at first, must next be connected musically to the next structure.

Another performance consideration that surfaces at this point is the choreography of the performer's movements. Each movement must be determined in order to successfully execute each musical passage. The performer must make several turns, twists, and stretches while playing. These must be clearly thought out and practiced in a consistent manner to avoid making critical mistakes. One example of this choreography occurs on page seven. Prior to the beginning of the piece, it is necessary to place the left foot on the vibraphone pedal and the right foot on the hi-hat pedal. After the first rectangle is played, the right foot must replace the left foot on the vibraphone pedal without a break in pedaling. The next rectangle requires turns to the left, while the right foot remains on the pedal. If the performer fails to switch feet on the pedal, the passage could not be performed. Examples such as this occur throughout Zyklus. Each performer must decide his own way to execute a passage because one performer's decision might not work for another.
Another performance consideration relates to the actual playing technique required for a musical passage. The mallets may be played with the mallet head, stick shaft, or end of the shaft. Striking instruments with various areas of the mallets results in more variety of sounds. The very soft notes on the gong, tam-tam, and cymbals can be played effectively using the end of the shafts. It is also very effective to perform the soft tom-tom and log drum notes on page thirteen with the fiberglass shaft ends.

The gong, tam-tam, and cymbal notes are specific as to whether the notes should be choked or made to let vibrate. Liberty can be taken if there is a musical or technical problem. One example of this can be found on the soft choked tam-tam note on page eight. In this performance the vibraphone sound extends directly to the tam-tam and from that point the soft gong passages appear. This is the final moment of the performance and it is more effective to let the tam-tam vibrate into the gong passage than to choke the tam-tam. The last note of the performance, a soft, choked tam-tam note, is more effective if proceeded by freely vibrating sounds.

Another technique, used to create variety of keyboard sounds, is the dead stroke. It is very effective for extremely soft, short notes on the vibraphone and marimba. The rectangle on the right side of page ten is an area that is enhanced by the use of dead strokes.
Vibraphone pedaling deserves special consideration. The pedaling may be notated in specific durations or left to the performer's discretion in specific passages. In this performance all pedaling has been determined as to duration in advance. Quite often, the pedal is depressed until a musical idea is completed. The next idea begins without the vibraphone sound and gives the aural impression of the start of a new phrase. The most effective use of this concept occurs at the end of page sixteen. The vibraphone glissando is pedaled and remains sounding until the beginning of the next page, which is a new idea.

A final consideration for Zyklus concerns the performer's attire. Because of the great amount of athleticism required for the performance, it is necessary for the performer to wear clothing that allows for the constant twisting, turning, and stretching. Also, the performer might consider wearing soft soled shoes to avoid all the noise made by the many foot maneuvers.

Zyklus presents a performer with various problems not present in traditional music. The performer must become familiar with the many notational, conceptual, and technical principles in order to effect a musical performance. It demands the utmost in concentration, musicality, and technique from the solo multiple percussionist.
CHAPTER IV
DUETTINO CONCERTANTE

Ingolf Dahl began composing Duettino Concertante while on a skiing holiday in Aspen, Colorado, in February of 1966, and finished the composition on December 3, 1966, in Los Angeles. The first performance took place on December 10, 1966 at the USC School of Music. The concert, entitled "An Evening With The Music of Ingolf Dahl", featured Susan Stockhammer-Cohan on flute and Barry Silverman as the percussionist. Dahl made further corrections and revisions to the score during his stay at the Macdowell Colony in Peterborough, New Hampshire, which lasted from February to March 1967.

The flute and percussion parts are written in score form and consist of 22 pages. Because of many page turning problems, it may be necessary for the flutist to photocopy several pages of the score. The percussionist must also photocopy, tape together, and spread many pages of the score on the music stands in front of the multiple percussion set-up.

Dahl included three types of percussion instruments in Duettino Concertante--metal, wood, and skin.

The instruments are listed in the appropriate category:

**Metal**
- cymbals (2)
- triangle

**Wood**
- woodblock

**Skin** (membranophones)
- tom-toms (2)
- snare drums (2)
- bongos (4)

Dahl provides an instrument placement diagram in the auxiliary notes (Figure 5). The instruments are placed in a graduated fashion, the lowest sound on the left and the highest on the right.

![Diagram of instrument placement](image)

**Figure 5. Duettino Concertante set-up diagram.**

Although each instrument does not clearly correspond to any definite pitch played by the flute, the listener can hear a relationship between the twelve basic timbres and the twelve tones of the octave, and the correspondence of the eight
graduated membrane timbres of the drums to an eight-tone scale.

The notational framework for the percussion instruments is an extended staff format while the striking implements, playing techniques, and sound source modifiers are shown by the use of pictographs. The percussion part, written in traditional notation, is very inventive, calling for colors and effects such as rim shots, striking sticks together, striking the rims and other various areas of the instruments, sliding brushes and fingernails on drums and cymbals, and bending notes on a drum by sliding a stick or elbow across the drum head while striking the drum head with another stick. Most effects and techniques are explained in the chart of pictographs, however it is interesting to note the absence of two pictographs in the auxiliary notes that are present in the score (Figure 6), as well as the inclusion of two pictographs in the notes that do not appear in the score (Figure 7).

- slide across drum head in a wavy line
- on side of drum

Figure 6. Duettino Concertante, pictographs omitted.
Duettino Concertante is a four movement work (Alia marcia, Arioso accompagnato, Fughetta, and Presto finale) based on a freely conceived twelve-tone technique. In Duettino, Dahl changed from his usual quintally-constructed tone rows to one with symmetries and harmonic implications based on minor thirds. The four movements are centered around C, Eb, F#, and A to C respectfully. The flute part is serially organized while the percussion part is not. Dahl attempted to organize sections of the percussion part serially but abandoned the idea with this comment in his sketchbook: "The rhythmic-row schemes won't work in context with the flute music (use in another piece)."2

The first movement, Alla marcia, is an ABA form with a contrapuntal and pointillistic texture. The three-part form of the first movement is clarified by the percussion instrumentation and pulse variation (Figure 8). Imitation his the compositional technique that permeates the first
movement. Dahl even provided special instructions for the percussionist to imitate the flutist (Example 10).


\[
\begin{array}{c}
\begin{array}{c}
\text{Al} & \text{A2 trans.} & \text{B1} & \text{B2 trans.} & \text{A1 coda} \\
\text{mm. 1-16} & 17-31 & 32-36 & 37-53 & 54-64 & 65-66 & 67-76 & 77-95
\end{array}
\end{array}
\]

Figure 8. *Duettino Concertante*, form of first movement.

The first section (Al) begins with the rhythmic theme presented in the percussion and followed by the entrance of the flute (Example 11).

Example 11. *Duettino Concertante*, first movement, rhythmic theme example, page 3, mm. 1-3.
A non-imitative contrapuntal interplay follows until the inverted theme appears in first the percussion (mm. 16-17), and then imitated by the flute (m. 18). The rhythmic pulse is interrupted at the end of A2 by the use of cross rhythms (Example 12).

Example 12. Duettino Concertante, first movement, cross rhythm example, page 4, mm. 29-31.

The percussion part is performed primarily on the two snare drums. The transitional section marks the first appearance of all eight drums (Example 13).

Example 13. Duettino Concertante, first movement, transitional section example, page 4, mm. 32-35.

The second section (B) is characterized by imitative counterpoint and contrasts of meter. Imitative interplay is once again the main focus of B1 (mm. 37-53) and there is also a break of rhythmic continuity before the next contrasting section (mm. 50-53). The percussion part is
primarily played on the higher indefinite pitched instruments, such as the bongos and woodblock. The second half of B (B2) contains a sharp contrast in character and meter to B1. This section returns to the snare drums, and similarly to the A section transition, all drums are introduced.

The third and final major portion of the movement (mm. 67-95) returns to the original theme, but this time the percussion imitates the flute. The snare drums are again the dominant sound. The coda (mm. 77-95) marks the appearance of all the drums used previously, an elimination of pulse (mm. 90-92) and interjections of rhythmic motives derived from the main theme (Example 14).

Example 14. Duettino Concertante, first movement, interjections of rhythmic motives example, page 7, mm. 87-93.

The ternary form (ABC) of the second movement is largely determined by contrasts in texture, rhythm, and instrumentation (Figure 9).

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C (A1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm. 1-15</td>
<td>16-56</td>
<td>57-80</td>
</tr>
</tbody>
</table>

Figure 9. Form of second movement.
In section A, the flute is dominant while the percussion supplies an introduction and sparse accompaniment. The rhythm is rather free as compared to the metric first movement. The flute part consists of an expressive, slow melody with wide leaps, while the percussion part contains mostly non-metric rhythms played primarily on the cymbals with brushes. This thin texture and compositional writing style allows room for expressiveness and rhythmic freedom (Example 15).

Example 15. *Duettino Concertante*, second movement, expressive flute melody with non-metric percussion accompaniment example, page 8, mm. 4-9.

The B section begins with the flute somewhat dominant, but the role of the percussion increases until the instrumental parts are of equal importance (m. 31). The
melody then alternates equally between the two parts using a hocket technique (Example 16).

Example 16. Duettino Concertante, second movement, hocket example, page 9, mm. 31-33.

The remainder of section B is an alternation of soloistic passages, culminating in a unison climax (m. 53). The rhythmic style is much livelier within a steadier metrical pulse, but each of the cadenza-like solos allows for expressive rhythmic interpretation. The overall texture is thicker due to the use of more drums and less cymbals. The use of swirling brushes on the drums (mm. 17-20) gives a great textural contrast to the previous striking of cymbals with brushes. Dahl also achieves a wide range of dynamics and timbres by incorporating several different striking implements such as brushes, fingers, rattan handles, and soft sticks.

Section C returns to the rhythmic style of the A section, beginning with a percussion introduction and an accompanied flute solo. In contrast to the A section, the percussion part, which is more varied in texture and timbre,
is more predominant. To provide instrumental contrast, sections A and C include cymbals played with various striking implements such as brushes, metal ends of brushes, and fingernails. The middle section places more emphasis on the drums. Dahl also presents the listener with a variety of textural and timbral possibilities by the increased variety of playing techniques and striking implements.

The third movement, entitled "Fughetta", once again emphasizes imitative interplay between the flute and percussion. Dahl wrote this contrapuntal movement as a three voice fughetta with the percussion playing two of the voices. The right and left hand each play a separate part that is easily distinguished by virtue of contrasting striking implements.

The movement begins with the opening subject played on the drums by the right hand of the percussionist. The left hand next plays the countersubject while the right hand restates the subject on different drums. After the initial statement of the subject and countersubject, the flute enters with the subject (Example 17).
These subjects are developed until a stretto fugue, based on the opening motive of the subject, appears at an eighth-note interval (Example 18). A slight pause (m. 30) provides separation and an added emphasis to the climax which is another stretto fugue at a quarter note interval (Example 19).

After the short-lived climax, a release of tension, coupled with the decline of rhythmic activity, continues to the end of the movement. The percussion part contains only pianissimo echoes of the subject and countersubject.

The last movement is in the form of a five-part rondo (ABACA) with coda. Contrasts in tempo, texture, and instrumentation are major factors in delineating the sections. The A sections portray a very energetic, almost frantic character, while the B section is a subdued waltz and the C section is serene and non-metric.

\[
\begin{array}{cccccc}
A & B & A & C & A & \text{Coda} \\
\text{mm. 1-52} & 53-71 & 72-119 & 120-136 & 137-167 & 168-195 \\
A1 & A2 & A3 & A4 \\
\text{mm. 1-17} & 18-52 & 72-87 & 88-119
\end{array}
\]

Figure 10. Form of fourth movement.
The first A section is divided into two contrasting parts (A1, A2). The movement opens with a fast, rhythmic motif in the percussion part and is followed by a fast, rising scale passage in the flute. The A2 part (mm. 18-52) begins with a varied repetition of the first motif, but develops differently. The dialogue between the flute and percussion parts is written primarily in a non-imitative style, containing only a few short, imitative phrases (mm. 15-17, mm. 45-47). The instrumentation calls for the use of all the percussion instruments. The first appearance of the rhythmic motif (A1) played on the cymbals (Example 20) is contrasted by the second appearance (A2) played on the drum rims (Example 21).

Example 20. Duettino Concertante, fourth movement, rhythmic motif example, page 17, mm. 1-4.

Example 21. Duettino Concertante, fourth movement, rhythmic motif variation example, page 17, mm. 18-23.
The B section (mm. 53-71) in triple meter is primarily a flute solo with a snare drum (snares off) accompaniment. This subdued waltz is in direct contrast to the frantic A section.

The second A section (mm. 72-119) is similar to the first A section in texture, form, and tempo, but the two appearances of the rhythmic motif (A3, A4) are now played with fingers and then sticks on drums.

The short, serene C section (mm. 120-136) is a non-metric section characterized by long, sustained flute tones interspersed with sparse pointillistic metallic effects on the triangle and cymbals (Example 22).

Example 22. *Duettino Concertante*, fourth movement, non-metric example, page 22, mm. 120-126.

![Example 22](image)

The third and final A section (mm. 137-167) is shorter and not divided into two parts. The rhythmic motif, played on the woodblock and bongos with brushes, provides further contrast to the earlier motif statements.
The coda (mm. 168-195), which includes all the percussion instruments, contains energetic, rhythmic passages similar to the A sections, and subdued, serene elements of the contrasting B and C sections. The sharp, pointillistic attacks in the flute and percussion parts (mm. 168-174) clearly sets the coda apart from the previous material.

**Performance Problems**

Although Dahl wrote a great deal of flute music, his idiomatic and virtuosic flute writing in this piece includes only a few contemporary flute special effects such as flutter tonguing and harmonics, and avoids many other common effects such as note bending, clicking of keys, and unusual tone production. His use of the flute, which is primarily traditional, does however include many creative idiomatic articulations and other expressive markings. One such marking is the alternation of vibrato and senza vibrato in the coda of the final movement.

The performance problems associated with the flute generally involve rhythm, pulse, and balance with the percussionist. The flutist must work out the difficult technical passages and perform them with a steady pulse. The pulse must sometimes be subdivided in practice and performance, especially in unusual rhythmic sections (Movement 1, mm. 53-63).
There are a few problems that affect the flute and percussion players. There are several page-turn problems throughout the work that make photocopying the score a necessity. The flute player may spread each entire movement over several music stands while the percussionist, using two music stands, must fold and incorporate page turns during the work. The two sections that are musically affected by this problem occur in the final movement. At the end of page nineteen, the percussionist must set down a pair of sticks, turn the page and play with hands on drums. The flute note can be held while the percussionist makes the necessary moves. Dahl was aware of the problem and provided a fermata in the first measure of page twenty. The turn from page twenty-one to twenty-two also makes it necessary for the flute player to hold the first note of the next page until the percussionist makes the necessary page turn and stick change.

Both performers must always be conscious of a potential balance problem. Dahl was obviously aware of this potential problem and attempted to solve it by writing the flute part one dynamic level higher than the percussion part. He also suggests that mutes may be used. Because of this constant balance problem, the percussionist must perform with the restraint of a chamber setting rather than the wide dynamic range of a large ensemble setting.
The performance problems for the percussion part are numerous and include matters such as choice and placement of instruments, choice of striking implements, unique notation, articulation, balance, and technique.

The choice and placement of instruments are crucial matters involved with a successful performance. Dahl included a set-up diagram in the auxiliary notes that provides a logical solution to the placement of instruments. No alterations of the set-up were necessary for this performance. It is important to choose instruments that will blend together as a cohesive unit and not overpower the flute.

The striking implements used for this performance are a pair of snare drum sticks with yarn mallets on the butt ends, a pair of medium yarn mallets with rattan shafts, and a pair of brushes with metal ends. A stick tray is placed on the left hand side of the set-up.

Another problem for the percussionist is learning to read the unique notation. First of all, the instrument set-up must be associated with the extended stave framework. The table of pictographs must then be studied and memorized. These pictographs are divided into three general functional categories; sound source modifiers, striking implements, and sound production techniques. In the early stages of learning this piece it may be necessary to refer to the auxiliary notes and perhaps make notes on the manuscript
concerning a particular stick choice or method of playing. Dahl's notational framework and pictographs are quite logical and can be assimilated after a fairly short time.

There are a variety of technical problems in Duettino Concertante. One problem is the turning on and off of snare drums. This must be practiced because Dahl left only a small amount of time for the change. In the first movement, (m. 28), the percussionist only has two beats to turn both snares off and begin to play. The end of the movement provides only a beat to turn both snares on, play two measures, and quickly turn both snares off. Because of the difficulty involved, this turning on and off of the snare drums has been omitted from this performance. In the coda of the final movement, Dahl uses the sound of a snare being turned on as a musical note (m. 172). This snapping sound must be practiced in order to perform the correct rhythm.

Another technical problem is the changing of sticks during the performance. These changes occur frequently throughout and in many cases they must be handled in a rapid manner. The most difficult stick changes occur during the third movement. The double ended sticks are frequently turned over, sometimes both together and sometimes separately.

Dahl calls for the bending of notes of the lowest drum. The best way to achieve the desired effect is to strike the drum with the right stick and depress or release
the elbow from the center of the drum. This allows for the
drum to change pitch and still resonate. Sliding the left
stick across the drum while striking with the right bends
the note but also muffles the sound.

Articulation poses another problem for the percus-
sionist. Stickings are only notated in the "Fughetta" (m.
15 and mm. 19-20) and percussion fingerings are notated in
the last movement (m. 101). All other articulations are
left to the discretion of the performer. A change in
sticking most likely will result in a change of phrasing.
Therefore, stickings may need to be notated in the score and
practiced in a consistent manner. The most problematic
sticking passages occur during the "Fughetta." The stretto
fugues (mm. 23-25 and mm. 30-32) and the last two measures
of the movement demand independence of the right and left
hand. The two hands each function as separate parts, which
are clarified by the contrasting striking implements.

It is important for each player to be continually
aware of the other's part in order to assure good ensemble
performance. Although there is room for expressive inter-
pretation by both performers in Duettino Concertante, Dahl's
exacting and specific notation requires the performers to
assume the role of executants. Duettino Concertante demands
the utmost in concentration, cooperation, and precision of
execution from both performers.
CHAPTER V

SUMMATION

Notational Procedures

Stockhausen eschewed traditional notation in Zyklus because his intent to write a composition of non-metric, static sound elements would not be realized to his satisfaction by the "old" notation. Traditional notation poses many problems for a composer seeking "new sounds." Kurt Stone wrote:

Conventional notation always presupposes pulse; it knows only regularities and irregularities of metric pulse. It does not provide adequate means for the precise notation of pulseless, a-metrical rhythmic structures, or of controlled ritardandi and accelerandi.¹

Dahl, being more of a traditionalist, composed Duettino Concertante using a standard notational procedure. He was able to create an illusion of pulseless music through the use of long, sustained flute tones accompanied by sparse syncopated irregular rhythms in the percussion part.

The proportional and graphic notation in Zyklus, more explicit in terms of dynamics and time durations than

¹. Kurt Stone, "Problems and Methods of Notation," Perspectives of New Music 1/2 (Spring 1963), 16.
traditional notation, seeks interpretation instead of pure execution from the performer. The eight dynamic levels of conventional notation (ppp-fff) can be broken into even smaller dynamic bands by proportional notation. The beginnings and endings of notes are also very explicit when compared to breath marks after long tones, grace notes, and ornamentation of the older notation. Dahl, however, was very meticulous with dynamics and rhythmic complexity, challenging the performers to execute properly the precise musical notation in Duettino Concertante. Gundaris Pone refers to "old" and "new" notation in regards to performers' action/reaction:

Traditional notation induces a stimulus-action movement by a performer; that is, the notation causes a performer to act according to the notational prescription. The "new" notation induces a stimulus-reaction movement by a performer; that is, the performer reacts to the notated materials in an unpredictable, interpretive response.²

Many composers and performers feel that no notational system will fit every possible situation. David Behrman, in his article, "What Indeterminate Notation Determines," said that "the range of sound which a player is capable of

covering is so extensive and so susceptible to nuance that no notation can hope to control the whole of it.”

By eliminating signs of conventional notation, graphic or proportional notation leaves more room in scores for symbols representing instruments, type of sticks, and special techniques. Three types of pictographs appear in Zyklus—designation of sound source (Figure 11), striking implement (type of stick or mallet) (Figure 12), and sound production technique (special technique required to play a specific passage) (Figure 13). Duettino Concertante also contains three types of pictographs. Since Dahl employed a five-line staff for instrument designation, he did not need sound source pictographs. He did use pictographs similar to Zyklus to designate striking implement (Figure 14) and sound production technique (Figure 15). Dahl also included pictographs to designate sound source modifiers (Figure 16). The modifiers pertained to the snare drums with snares on or off. Most individual signs within these functional pictograph categories communicate on an action-hand level, each shaping one or two parameters. This is especially true for the sound source and striking implement signs. A few of the

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3. David Behrman, "What Indeterminate Notation Determines," Perspectives of New Music III/2 (Spring-Summer 1965), 59.
signs pointing to specific means of sound production could be classified as sound-signal pictographs.  

Figure 11. *Zyklus*, sound source pictographs.

Figure 12. *Zyklus*, striking implement pictographs.

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- strike closed hi-hat with stick or close it with pedal action
- strike open hi-hat with stick
- strike open hi-hat in center with stick
- rim shot on tom-toms
- strike center of cymbal or gong

Figure 13. *Zyklus*, sound production technique pictographs.

- soft ends of double-headed sticks
- hard ends of double-headed sticks
- rattan sticks with wound mallets
- reverse end of rattan sticks
- brushes
- reverse end of brushes (metal)
- fingernails
- hands or fingers

Figure 14. *Duettino Concertante*, striking implement pictographs.
- on dome of cymbal
- on center of cymbal
- on edge of cymbal
- split brush over edge of cymbal
- in dead center of drum head
- at extreme edge of drum head
- left elbow slides from edge to center of drum (glissando)
- the bracketed stick remains unchanged
- on the rim of drum
- rim shot
- circular slide on drums or cymbals
- snap on snares

Figure 15. *Duettino Concertante*, sound production technique pictographs.

- snares on
- snares off

Figure 16. *Duettino Concertante*, sound source modifier pictographs.
Most performers and writers, such as William Kraft, Steven Schick, John Galm, Christoph Caskel, and Reginald Smith Brindle, agree that symbols are easier to read than words and more economical in terms of space in a musical score. However, some percussionists feel that pictographs create confusion because each composer may formulate his own pictographs which may appear different from those commonly accepted. Joel Leach, percussion instructor at California State University Northridge, said that when an instrument first appears in a score, it should be accompanied by its complete name; thereafter, it should be accompanied by its abbreviation. Leach also stated:

Most articles supporting the use of graphic symbols in percussion have been accompanied by the author's own chart of symbol designs . . . the result has been that attempts at standardization have contributed to the proliferation but not the standardization of the symbols.5

Frank McCarty set a list of reasons and criteria for pictographs. Standard pictographs facilitate sightreading, have instantaneous meaning to percussionists regardless of nationality, eliminate confusing abbreviations and "foreign terms", eliminate words to make other notation elements clearer, and do not intrude upon any form of musical notation. Symbols should be adaptive to different musical

situations and capable of expansion in detail and use in various combinations.⁶

Christoph Caskel, collaborator with Stockhausen on the creation of pictographs, specified that signs must be illustrations, related instruments receive related signs, round instruments (guero, etc.) must be represented at odd angles, and abbreviations may accompany instruments that look similar in regards to shape (xylophone, marimba, vibraphone, etc.).⁷ Caskel, a strong supporter of using pictographs, stated that "after a short time one becomes so accustomed to them that the connection can be made immediately with the proper instruments if not always the proper tone color."⁸

Determinacy-Indeterminacy and The Role of Performer

Gardner Read, in a speech given at North Texas State University (1969), concerned himself with the dilemma of notation that faces the performer and composer of modern music:


⁸. Ibid., 82.
At this crucial point in the present century notation is now pursuing two diametrically opposite paths—the one utilizing traditional means and leading to even more uncompromising exactitude and predictability; the other based on new visual methods and directed towards ambiguity and chance, controlled or otherwise.  

Hugo Cole, author of *Sounds and Signs*, stated his opinions about the reasons for indeterminism in music:

1. Indeterminate notation involves a performer more deeply in the creative process as collaborator, rather than a composer's employee.

2. There exists a trend in present day music away from conventional pitch and time relationships.

3. The development of technology in communications has transformed many peoples' ideas from rigid conventional performance to more variable performance practice.

4. The need for a universal language of musical notation has less importance today because of the dissemination of music through recordings, radio, and television.

5. The original function of notation—to preserve music for posterity—has been taken over by recording.

6. Special notations protect a composers' work from non-understanding performers.

7. Technical developments in music score production makes experiments in notation more practical than in earlier ages.¹⁰

Zyklus, the first percussion piece representing multivalent form, offers the performer the responsibility of determining the overall form and structure. Even though the pitches and durations are specified, the actual sequence of notes or note groups is to be chosen spontaneously by the performer. In addition, the performer has the freedom to begin on any page, move in a clockwise or counter clockwise direction, and place the score with either long edge up. Stockhausen said that multivalent form depends on the choices by the performer, but it also demands the preservation of the composer's responsibility:

In the genesis of multivalent forms I have tried to find not only a single valid solution but a number of different solutions that are all equally valid for all the moments that occur in the course of a context. The decision of the performer (who may be the composer himself) as to the version to be selected for a performance is included in the composition. The problem is to really mediate in a work between completely determined and relative multivalent processes, to ensure that the potential solutions are not arbitrary, but that each gives an irrevocably new direction to the formal process and simultaneously affects the whole. In other words: to create freedom (with responsibility), not pseudo-freedom, without the possibility that one of

the choices might give a "better" or a "worse" result.\textsuperscript{11}

In Duettino Concertante, the performers' responsibility lies with the proper execution of the written music and not with the form or content. Although the music does allow for personal expression, the performers' aim is to interpret and execute, not improvise. While Stockhausen was experimenting with form, Dahl's forms were conceived from classical models. Dahl's experiments related more to virtuosity and the unusual combination of flute and percussion timbres.

In both Zyklus and Duettino Concertante, the notational function governs the amount of interpretation/execution that is required of the performer. Gundaris Pone wrote about the relationship between notation and interpretation:

\begin{quote}
Varying degrees of notational determinacy and interpretive freedom are inversely proportionate to each other; therefore a high degree of notational determinacy diminishes the number of interpretive alternatives. To induce and define an action-stimulus, a high degree of notational specificity is desirable, whereas a reaction-stimulus, designed to stimulate the unpredictability of an interpretive response, must be based on relatively indeterminate notational symbols.\textsuperscript{12}
\end{quote}

\begin{footnotes}
\item[12.] Pone, \textit{op. cit.}, 120.
\end{footnotes}
Stockhausen toured virtually every country in Europe and the United States with Christoph Caskel, scrutinizing each performance of **Zyklus**. He felt that he was not finished with a piece of music until completely satisfied with its content and performance. He explained:

> When I put down a note and allow it to stand, still leaving it standing after some years--I know at precisely what instant to finally abandon it--then it will remain standing . . . each work must endure a time in which I go with it, following it up: being at performances, conducting it, playing, testing, and constantly rehearsing it.\(^{13}\)

Ingolf Dahl also placed great expectations on the performer when he said:

> What do I expect of an artist? That he turns and twists, and works and polishes and strains and chooses and rejects until the one choice word, phrase, sentence, is distilled from the chaos of the first vague inspiration. . . .\(^{14}\)

**Influences on Compositions and Performers**

**Zyklus** and **Duettino Concertante** represent two of the classics in multiple percussion literature. These two works have been two of the most frequently performed pieces in


recitals and concerts in the United States. Many college and university percussion instructors include them in their repertoire and also suggest their students study and perform them. In this way, the students not only develop technique and musicality, but also add to their knowledge of percussion literature. These works have had a profound influence on percussion compositions and performers.

The musical success of Zyklus and Duettino Concertante generated great interest and led to the writing of many new multiple percussion compositions. Composers such as William Kraft, Rickey Tagawa, Robert Stern, William Walton, Morton Feldman, Lejaren Hiller, Charles Wuorinen, and others began to incorporate instrumentation, notational concepts, and techniques from Zyklus and Duettino Concertante in their works. Thomas Brown compiled a chart in 1973 to compare percussion music performed during the years 1951-1952 and 1972-1973 in New York State. From lists published in the New York State School Music Association Music Manual, he found that a multiple percussion category was not even listed in 1951-1952; during 1972-1973, 49 solo multiple percussion compositions were listed.

Zyklus and Duettino Concertante may have served as catalysts for the standardization of percussion notation.

The International Congress on New Musical Notation, or-

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ganized by Kurt Stone in 1974, was founded because some composers felt a need for standardization of notation. Some believed that if pictographs were standardized it would simplify the performance of different works. If each composer used his own unique notation, it would necessitate that performers learn and memorize different pictographs for each work. Others felt that standardized notation would put a limit on the creativity of the composer.

Many composers are adopting some of the same pictographs used in Zyklus and Duettino Concertante. Others are looking to notation studies for standardization. One problem of standardization of percussion notation is that all inclusive studies (Karhoschka or Risatti, for example) include collections of symbols used by many different composers and often there are many pictographs that represent the same thing, resulting in a lack of consistency. ¹⁶ Other problems present in studies that include only single symbols (Caskel, Fink, Galm, for example) are that the list of symbols might not be complete in regard to the large number of different instruments, and that the symbols used may contradict with those that are already widely accepted. ¹⁷ So far, standardization has not been totally successful. There are still some composers and performers


¹⁷. Ibid.
who feel that pictographs should not take the place of the names and abbreviations of instruments.

In an examination of unaccompanied multiple percussion solos or works that include one or more instruments, a variety of notational procedures are employed. *Kontakte* for piano, percussion, and electronic sounds (1959-60) by Stockhausen (his next work after *Zyklus*), has many of the same notational frameworks and pictographs that appeared in *Zyklus*. In addition, Stockhausen includes in his auxiliary notes a photograph of the set-up used by the original performers, Christoph Caskel and David Tudor.

William Kraft, one of the most prolific and imaginative composers of multiple percussion music, usually uses a form of staff notation—five line staff as in *Courante II*, and extended stave as in *French Suite* and *Triangles*. Kraft also combines pictographs and written words in many works, including *French Suite*, *English Suite*, and *Images*. He invariably includes set-up diagrams and auxiliary notes, containing descriptions of pictographs and special concepts and techniques.

Other works such as *Sources III* for clarinet and percussion by David Burge, *Inspirations Diabolique* by Rickey Tagawa, and *Machine Music* by Lejaren Hiller include set-up diagrams and pictographs in a five-line staff framework, while Jerome Rosen's *Elegy* does not include symbols or set-up diagram. *Janissary Music* by Charles Wuorinen is one of
the most difficult works for multiple percussion because of the problems in reading the score. The performer must read five five-line staves instead of one or two. Wuorinen commented that he wrote the score in a complex manner because he wanted the piece to be memorized.

Zyklus and Duettino Concertante have also been influential in the development of multiple percussion performers. The success of Christoph Caskel as a solo percussionist inspired many other percussionists to include multiple percussion solos in their repertoire. Max Neuhaus was a student at the Manhattan School of Music when he first heard Caskel play Zyklus in January of 1962. He was so excited about the music that he drastically changed his direction from traditional percussion to new percussion music. In 1964 Neuhaus toured the United States with Stockhausen, performing Zyklus. In January of 1965, he performed a complete program of avant garde percussion music in the Carnegie Recital Hall. Later, in 1966, he toured Europe with Stockhausen.

William Kraft, already mentioned as a composer, also is noted as a prominent percussion performer in the United States. He played Zyklus on many occasions in the early 1960's and also gave its premiere performance on the West Coast. He stated that Zyklus inspired him to write a

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complex work which would present the virtuoso percussionist. This composition, entitled *Triangles* (solo percussion and ten instruments), is one of the most technically and musically challenging of all multiple percussion compositions.\(^1\)

Other percussion soloists in the United States who have helped the medium of multiple percussion gain acceptance are Karen Ervin and Steven Schick. Ervin, freelance percussionist and percussion instructor at California State University Northridge, has been involved as a performer of multiple percussion music since her days as a student at the University of Southern California (1960's). Ingolf Dahl consulted her and had her play Kraft's *French Suite* for him as he began to formulate ideas for *Duettino Concertante*.\(^2\) Through definitive recordings of *Duettino Concertante* and Kraft's *Encounters IV*, Ervin has established herself as one of the foremost multiple percussion performers.

Steven Schick, multiple percussion specialist and percussion instructor at California State University Fresno, frequently performs *Zyklus* and other multiple percussion works written for him. Schick, one of the most accomplished

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\(^1\) Conversation with William Kraft, Dallas, Texas, May 11, 1981.

\(^2\) Berdahl, *op. cit.*, 170.
of all multiple percussionists, performs all of his pieces, including *Zyklus*, from memory.

*Zyklus* and *Duettino Concertante* are historically significant because the notational procedures acted as a catalyst for the use and standardization of percussion notation, and they inspired numerous composers and performers to become involved with the medium of solo multiple percussion. The great demands placed on the percussionist helped to raise the performance level to that of a bonafide virtuoso musician.
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