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I, Colleen Richardson, hereby submit this work as part of the requirements for the degree of:

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Edgard Varèse and the Visual Avant-Garde:

A Comparative Study of Intégrales and

Works of Art by Marcel Duchamp

This work and its defense approved by:

Chair: Rodney K. Winther

Kimberly Paice

Terence G. Milligan
ABSTRACT

Edgard Varèse (1883–1965) had closer affiliations throughout his life with painters and poets than with composers, and his explanations or descriptions of his music resembled those of visual artists describing their own work. Avant-garde visual artists of this period were testing the dimensional limits of their arts by experimenting with perspective and concepts of space and time. In accordance with these artists, Varèse tested the dimensional limits of his music through experimentation with the concept of musical space and the projection of sounds into such space. Varèse composed *Intégrales* (1925) with these goals in mind after extended contact with artists from the Arensberg circle.

Although more scholars are looking into Varèse’s artistic affiliations for insight into his compositional approach, to date my research has uncovered no detailed comparisons between specific visual works of art and the composer’s *Intégrales*. This document juxtaposes works of art by Marcel Duchamp (1887–1968), the most influential artist in the Arensberg circle, with Varèse’s *Intégrales* to see how aesthetic parallels exist in different mediums. Duchamp’s works: *Nude Descending a Staircase, No. 2*, oil on canvas, 1912; *Tu m,’* oil and pencil on canvas, with bottle brush, three safety pins, and a bolt, 1918; and his *Rotary Glass Plates (Precision Optics)*, five painted glass plates, wood and metal braces, turning on a metal axis, electrically operated, 1920, provide primary models for comparative study. Personal and philosophical connections between these two contemporaries are outlined, and their works are examined for conceptual and technical characteristics of style. Comparisons are made between the aesthetic approach of *Intégrales* and the visual works studied. This investigation focuses on concepts and strategies that are relevant within both genres, and outlines the most significant philosophical, technical,
and conceptual correlations found between Duchamp’s representative works of art and Varèse’s *Intégrales*. 
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TU M’, 1918, OIL AND PENCIL ON CANVAS, WITH BOTTLE BRUSH, THREE SAFETY FINS, AND A BOLT
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ROTARY GLASS PLATES (PRECISION OPTICS), 1920
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Throughout my career my parents, Delmar and Doreen, have stood by every decision I have made. Although they do not understand why I would get more education to make less money, they have never questioned my dreams. To my parents, my sister Debbie, and my brother Gary I cannot thank you enough for your unconditional support. Lastly, I would like to thank my friends and my colleagues in the Wind Studies Office. You kept a smile on my face.
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CHAPTER 1
INTRODUCTION

Purpose for this Study

At the beginning of the twentieth century avant-garde artists struggled to break away from tradition, searching for their own creative voices through fresh approaches rather than by imitating the past. This resulted in the development of multiple, diverse artistic styles, including, among others, Cubism, Futurism, and Dadaism. One of the most fertile environments for this climate occurred within the salon atmosphere of Walter and Louise Arensberg’s New York apartment, at 33 West Sixty-seventh Street. The Arensbergs were avid art collectors, and Walter Arensberg enjoyed showing his latest acquisitions to all those who frequented their home. Aside from a couple of small, pioneering galleries, their apartment was one of the only places where avant-garde art could be viewed. Artist Marcel Duchamp (1887–1968) was their art dealer, a close friend, and practically a fixture at these gatherings. Consequently, many of his works made it into the Arensberg’s collection. Other French ex-patriots represented on their walls as well as within their circle of friends included Dadaist Francis Picabia and Cubist Albert Gleizes. Composer Edgard Varèse (1883–1965) arrived in New York on 29 December 1915, and Marcel Duchamp introduced him to the Arensbergs in the fall of 1916. Francis Naumann’s book, New York Dada 1915–23,¹ lists Varèse as the only composer active within their circle. Although Varèse’s biographies mention little of his relationship with the Arensbergs, his encounters and associations with other members of this circle are well documented.

This study will compare the compositional philosophies, concepts, and techniques employed in representative works of art by Marcel Duchamp, the most influential artist in the Arensberg circle, and Varese’s *Intégrales* (1925). Duchamp’s works: *Nude Descending a Staircase, No. 2*, 1912, oil on canvas (figure 1), *Tu m,’* 1918, oil and pencil on canvas, with bottle brush, three safety pins, and a bolt (figures 2 and 3), and his *Rotary Glass Plates (Precision Optics)*, 1920, five painted glass plates, wood and metal braces, turning on a metal axis, electrically operated (figure 4 and 5), will provide primary models for comparative study. Personal and philosophical connections between these two contemporaries will be outlined, and their works will be examined for conceptual and technical characteristics of style. Upon completion of this research, comparisons will be made between the aesthetic approach of *Intégrales* and the visual works studied. *Intégrales* was selected as the basis for discussion of Varèse’s compositional style because it represents his mature style and was composed after extended contact with artists from the Arensberg circle.

Varèse had closer affiliations throughout his life with painters and poets than with contemporary composers. During a lecture at Princeton University in 1959 he claimed to have “sought (and found) sympathy and corroboration from the practitioners of other arts.”³ Not surprisingly, he regularly applied visual references to his music, as demonstrated in the following statement:

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The role of color or timbre would be completely changed from being incidental, anecdotal, sensual, or picturesque; it would become an agent of delineation, like the different colors on a map separating the different areas, and an integral part of form.  

His explanations or descriptions of his music resembled those of avant-garde visual artists describing their own work. This practice was not entirely new. Symbolist currents of the nineteenth century made such overlapping of aural and visual signs commonplace. Just as painters spoke of form, texture, color, and rhythm to suggest spatial parameters of painting, musicians commonly employed these same terms to underscore temporal aspects of music. Avant-garde visual artists of this period were testing the dimensional limits of their arts by experimenting with perspective and concepts of space and time. In accordance with these artists, Varèse tested the dimensional limits of his music through experimentation with the concept of musical space and the projection of sounds into such space. Although he only physically actualized his spatial goals in *Poème électronique*, 1958, through speaker placement and electronic sounds, Varèse composed *Intégrales* with these goals in mind.

*Intégrales* was conceived for spatial projection—that is, for certain acoustical media not yet available but which I knew could be built and would be available sooner or later . . . A visual illustration may make clear what I mean: Imagine the projection of a geometrical figure on a plane, with both figure and plane moving in space, each with its own arbitrary and varying speeds of translation and rotation. The immediate form of the projection is determined by the relative orientation between the figure and the plane. By allowing both the figure and the plane to have motions of their own, a highly complex and seemingly unpredictable image will result.  

Varèse’s concept of projection affects several musical elements simultaneously, and this interplay is one of the main features in his music. Unfortunately, Varèse never clearly revealed

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his compositional techniques, because he considered most analysis to be “sterile” and a form of “decomposition.” When asked analytical questions, he responded with evocative statements full of reference to visual forms or events. Nonetheless, Jonathan Bernard, a Varèse scholar who studied with Allen Forte, believes that the clue to understanding this music is found in the visual images that the composer describes:

Varèse’s visual imagery has always been susceptible to interpretation as merely a rather involved metaphor. But this interpretation is unjustified. The visual analogy has a purpose, for the events described in such terms are in fact taking place literally in the music. “Spatial music” and “music in space” are phrases used by Varèse over and over again; the single unifying principle of his music is the manipulation of materials with reference to a spatial framework.6

Previous Studies

Bernard developed a procedure of spatial analysis for Varèse’s works emphasizing vertical sonorities, timbre, and connections between events. The graphic notation that accompanied his analyses imparted a visual analogy for the musical events. His research was initially presented in his dissertation for Yale University,7 and Integrales is one of the pieces that he analyzed. In his subsequent book, The Music of Edgard Varèse,8 Bernard dedicated the first chapter to Varèse’s aesthetic connections with avant-garde visual artists and then proceeded to explain Bernard’s own analytical method with detailed examples.


Olivia Mattis, a student of Bernard, expanded on Varèse’s aesthetic connections in her dissertation “Edgard Varèse and the Visual Arts.”

She thoroughly studied the composer’s involvement within his cultural environment. The scope of her research included the composer’s statements, all available archival resources, and previously unavailable correspondence. In agreement with Bernard, Mattis concluded that Varèse’s affiliations with artists outweigh his connections to composers, and that these affiliations afford insight into his style.

Varèse’s place in history is to be found among the painters, sculptors, filmmakers, and architects of his time, and the sources of his innovations in the musical realm can be found here, more than in any musical heritage. He is much closer to Duchamp than to Schoenberg; closer to Le Corbusier than to Bartók.

Thomas Greer’s dissertation, “Music and its Relation to Futurism, Cubism, Dadaism, and Surrealism 1905–1950,” was a ground-breaking document in 1969 because it outlined the historical backgrounds of the various movements and then attempted to show music’s role within each movement. In 1974, Anne Florence Parks’s “Freedom, Form, and Process in Varèse: A Study of Varèse’s Musical Ideas, Their Sources, Their Development, and Their Use in His Works” included references to his connections with contemporary thought as well as his artistic acquaintances. She attempted to put her ideas into a musical discourse emphasizing spatial

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10 Ibid., 3.


12 Parks.
dialogue. Other scholars have discussed his music’s stylistic traits. Darrell Elroy Wood\textsuperscript{13} and Paul Ramsier\textsuperscript{14} compared \textit{Intégrales} with other works by Varèse during this period, and Chou Wen-Chung, one of Varèse’s only students, has written about his teacher’s compositional approach.

Varèse’s lectures and interviews are invaluable and offer glimpses into the composer’s thoughts and inspiration. Mattis’s dissertation documents the discourse pertinent to this study. Two biographies supply information on his associations and philosophies: \textit{Varèse A Looking-Glass Diary}\textsuperscript{15} by his wife Louise Norton, and \textit{Edgard Varèse} by Fernand Ouellette.\textsuperscript{16}

Specific works by Duchamp will serve as examples drawn from the visual arts in this comparative study. Art Historian Linda Henderson’s \textit{The Fourth Dimension and Non-Euclidean Geometry in Modern Art}\textsuperscript{17} makes reference to Varèse’s connections with contemporary artists and discusses the painter’s use of space and the fourth dimension. Her more recent book, \textit{Duchamp in Context: Science and Technology in the Large Glass and Related Works}\textsuperscript{18} discusses

\begin{thebibliography}{9}
\bibitem{13} Darrell Elroy Wood, “A Paradigm for the Study and Performance of \textit{Intégrales} and \textit{Hyperprism}, Two Instrumental Works by Edgard Varèse” (D.M.A. diss., Ball State University, 1974), microfilm.
\end{thebibliography}
and reveals the probable influence of late nineteenth and early twentieth century rhetoric within Duchamp’s oeuvre. David Joselit’s book *Infinite Regress: Marcel Duchamp 1910–1941* discusses the artist’s stylistic evolution as well as proposes various readings of his works of art. Biographical information is abundant including research by Calvin Tomkins, Dawn Ades, Francis Naumann, and Anne d’Harnoncourt, all of whom are recognized scholars of Duchamp’s work. Finally, published interviews with the artist offer further insights into his philosophies, techniques, and ideas.

**Rationale**

Although more scholars are looking into Varèse’s artistic affiliations for insight into his compositional approach, to date my research has uncovered no detailed comparisons between specific visual works of art and the composer’s *Intégrales*. While Mattis and Bernard have provided important research, neither has examined individual works of visual art for their characteristics of style. Mattis focused on the shared aesthetic thought of Varèse’s and his contemporaries and made a superficial allusion to the actual music. Bernard briefly described parallels between Varèse’s statements and contemporary aesthetic thought in order to support his technique of spatial analysis, but his analysis of *Intégrales* centered on the music itself, rather than on a comparison of this piece with works of visual art. This document will juxtapose works of art by Duchamp with Varèse’s *Intégrales* to see how aesthetic parallels exist in different mediums. For instance, Duchamp’s *Nude Descending a Staircase, No. 2*, 1912, an oil painting rendered in a Cubo-Futurist style, shows movement and multiple views of the same object.

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through inexact repetition in space. Varèse offers multiple views of his opening motive in
*Intégrales* through inexact repetition by different instruments. The sound travels between
instruments thereby moving the sound source around the ensemble (i.e., spatial movement).
Also, due to Varèse’s use of inexact rhythmic repetition, the motive shifts in its temporal
environment.

**Method**

In conclusion, this study will review available analyses for *Intégrales*, pertinent
biographical information, the work itself, and the composer’s own dialogue to determine the
main characteristics of style in this work. Selected works of art by Duchamp will also be studied
for their aesthetic approaches. This investigation will focus on concepts and strategies that play a
part in both genres. Upon completion of my analysis, I will outline the most significant
correlations, whether they are philosophical, technical or conceptual, between Duchamp’s
representative works of art and Varèse’s *Intégrales*. From this exploration, I expect to come to a
deeper understanding of this major wind work and the early twentieth-century artistic climate in
New York.
CHAPTER 2
EDGARD VARÈSE (PRE-INTÉGRALES)

The Early Years—Turin

Edgard Varèse was born to Henri and Blanche-Marie Varèse on December 22, 1883 in Paris. The first born of five children, Edgard went to live with his maternal uncle in the village of Villars in Burgundy soon after his birth. Varèse’s father, an engineer, was “continually obliged to travel about,”¹ and the relationship between his parents was abusive. Villars briefly shielded Edgard from this volatile environment until school age, when he was forced to return to Paris and live with his parents. Varèse retained fond memories from his time in Villars, and his fondest memories were those of his grandfather, Claude Cortot. It was his grandfather who took him to the Paris Exposition in 1890, where upon Varèse heard his first opera, Massenet’s *Manon*.²

Around 1892, Henri Varèse relocated the family to Turin, where his direct influence only served to alienate his son further. Henri expected his eldest to become a businessman like himself, completing his studies at the Polytechnicum Fédéral de Zurich, “And so, directed to this end, from elementary school on, his son’s studies were largely scientific and mathematical.”³ Varèse, now an adolescent, “Too familiar with the freedom of a great river and the open air, could only rebel and rise in defiant revolt against his industrially-minded father’s authoritarian temperament and practical good sense.”⁴ While attending the technical institute, he secretly

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¹ Ouellette, 4.
² MacDonald, 3.
³ Louise Varèse, 23.
⁴ Ouellette, 8.
taught himself music, and at eleven years old composed what he called an opera for his classmates. Varèse wrote the libretto, “Based on the heroic love story Martin Pas by Jules Verne.”5 A Mandolin gifted to him by his grandfather supplied the instrumental accompaniment.

Turin had two definite advantages over Villars: a conservatory and an opera house. Varèse heard his first symphony concert around 1895 performed by the touring company Concerts Colonne. As luck would have it, the concert consisted of some of the most important contemporary composers: César Frank, Paul Dukas, Richard Strauss, Richard Wagner, and Claude Debussy.6 The work that left the biggest impression on Varèse was Debussy’s Prélude à l’après-midi d’un faune. But as his interest in music became increasingly obvious, “his father locked the keyboard shut, covered the whole piano with a thick black shroud, and kept the key of the room himself.”7

In 1897 Varèse’s mother died at the age of thirty-one. On her death bed she told her eldest of fourteen years, “Veilles sur tes frère, ton père est un assassin (Protect your brothers; your father is an assassin).”8 He took heed of her wishes, and spent time with his brothers. Soon afterward Henri remarried, and just as Varèse had pitied his natural mother, he felt no great affection for his stepmother. His relationship with his grandfather helped him through these tough childhood years:

During those years in Italy, Grandpère was Varèse’s great consolation, his safety valve, to whom he could pour out all his fierce angers and unbearable frustrations. They also

5 Louise Varèse, 24.
6 Ouellette, 9.
7 Ibid., 9.
8 Louise Varèse, 26.
enjoyed some good times together. Grandpère took him to the opera, to concerts, and once they went to Paris together to the World’s Fair of 1900.

Varèse found another ally in Giovanni Bolzoni, the Conservatory Director, who gave him free lessons in harmony and counterpoint, as well as introduced him to many local and touring musicians. Through Bolzoni’s assistance, he became a percussionist in the Turin opera house and conducted a rehearsal of *Rigoletto* when the conductor fell ill. Not only did Bolzoni open up Varèse’s musical world, he came to his aid with his father:

It was to him [Bolzoni] that Varèse went when he felt that he could not endure his life at home any longer and had decided to leave. He begged Bolzoni to help him get to Paris so that he could go on with his music free from his father’s harassment. Bolzoni kept the boy with him for a couple of days and finally with the kindly support of a friend, Monsignor Spandre, the Bishop of Turin, made him understand that he would not be able to cross the frontier and that his father could have him brought back. Varèse was still in his seventeenth year. Bolzoni sent word to Varèse’s father and Henri Varèse stormed in angrily demanding his son. Varèse described the scene: “The three of us, Bolzoni, Monsignor Spandre, and myself, were standing at the top of the stairs looking down at my father in the hall below. Monsignor Spandre took command. With all the authority of the Church and eloquence and dignity of a high churchman and an Italian, he impressed upon my father that his son had influential protectors, including Cardinal Riscelmi. I can’t remember all he said. I was too angry and jubilant, but he succeeded in awing the bastard, who left me alone after that.”

Henri did not hit Varèse again, and allowed him to quit his studies at the Technical school, giving him a job in his business. However, when Henri threatened to strike his new wife, his eldest, now nineteen, attacked him in a fit of rage. In 1903, Varèse left for Paris, distancing himself from his father and freeing himself to pursue his music studies.

**Personal Liberty—Paris**

Once in Paris, Varèse shared an apartment with a previous classmate from Turin. He found work as a copyist in order to support himself, but he was living in poverty. His cousin

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9 Ibid., 28.
Alfred Cortot, a pianist and friend of Vincent d’Indy, helped Varèse gain entrance into the Schola Cantorum in 1904. Subsequently, D’Indy found him a job in the library to pay for his tuition. Varèse’s studies included composition and conducting with d’Indy; counterpoint and fugue with Albert Roussel; as well as Medieval, Renaissance and early Baroque music with Charles Bordes. “The Schola opened up for Varèse all the riches of musical life before Johann Sebastian Bach.”10 He also made friends and established contacts; Paul Le Flem, a fellow Debussy sympathizer, was one of his classmates who became a critic and a composer; François Bernouard, a fellow student, became a publisher. They introduced one another to many people over the years. However, Varèse disliked d’Indy’s patriarchal manner and applied for the Paris Conservatoire.

Another early acquaintance included a brief tenure of employment with the sculptor Auguste Rodin. Details about his duties are vague; there is some confusion as to whether Varèse was a protégé, model, or secretary-companion to the sculptor. Regardless of Edgard’s specific obligations, he seems to have been employed and living with the sculptor between February and September of 1905. Rodin was known to assist visual artists and writers, but Varèse was “the only known composer to have assumed this role.”11 The sculptor, like d’Indy, was an authoritative figure, which meant that their association was doomed. “Varèse left Rodin’s milieu and the Schola Cantorum nearly simultaneously in the fall of 1905.”12

Notification of his acceptance into Charles Widor’s masterclass arrived from Gabriel Fauré, the Director of the Conservatoire National de Musique et de Déclamation, on 8 January

10 Ouellette, 14.
11 Mattis, 20.
12 Ibid., 23.
1905. While there Varèse competed for the 1906 Prix de Rome but failed, and chose never to compete again. Both Widor and Jules Massenet were supportive of Varèse, and their recommendations awarded him the *Première Bourse artistique de la Ville de Paris* in 1907. Once again Edgard’s personality clashed with the school’s authoritarian, Fauré. The young composer was more interested in forging a new musical path, rather than imitating past techniques:

The generation of composers around the year 1900 was no longer caught up in the battle between ‘pure music’ and ‘music drama.’ The war it had to wage was situated on a quite different level, and its critical implications have proved more considerable: what was really at stake for this generation was the very validity of music’s raw material.\(^{13}\)

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*La Rénovation Esthétique—La Mansarde*

Shortly after his break with Rodin, Léon Deubel, a poet and a friend of the Guillaume Apollinaire, invited Varèse to share his lodging above the offices of a newly formed arts journal, *La Rénovation Esthétique*. The founder of the publication, painter Emile Bernard, had named Deubel editor of this journal. The journal’s motto read, “There is neither ancient art nor modern art; there is art, that is, the manifestation of an eternal ideal.”\(^{14}\) This theme would have resonated with Edgard, who restated this philosophy throughout his career. Varèse wrote concert reviews for the journal, and his music was reviewed in the publication. Armande de Polignac penned the first critique of Varèse’s music in January 1906:

Heard recently the works of Edgard Varèse with the author himself at the piano. A breath of genius emerges from this learned music, vibrant and strong. The themes are very beautiful, large, powerful and very characteristic, which is rare and which allows one to remember them and to follow them throughout the work. The developments denote a love

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\(^{14}\) Mattis, 24.
of form. Among the orchestral works of the young composer, we may cite: “Crépuscule Alpestre,” “Sur les Berges” and “Apothèose de l’Océan.” Edgard Varèse manipulates the orchestra with rare agility, recognized by our greatest masters. Ingenious discoveries of sonority, the fracas of many brass instruments in the mass of his orchestra show that he is master of this grand instrument. Let us also mention the “Rapsodie Romane” and the “Fin d’un jour,” symphonic poem based on the beautiful eclogue of Léon Deubel. In addition, diverse melodies for voice and piano, among which I would cite especially “Le Souvenir,” sonnet of the same poet, in which the music unfolds passionately and logically while closely following the words.15

This review provided a rare glimpse into Varèse’s early style, because all of his early works, excluding Un Grand Sommeil Noir (1903–6) for voice and piano on a poem by Paul Verlaine, were either lost or destroyed. Polignac probably heard this music performed at a musical soirée hosted by the group of artists surrounding Deubel and Varèse while they were roommates.

In Varèse and Deubel’s attic apartment a group of artists from various media congregated. They called themselves La Mansarde, after the ‘mansard’ or attic room where they met. Mattis described their mandate, “This group, comprised mainly of students, venerated Wagner, and sought, itself, to touch all the arts.”16 Deubel, in a letter to a friend, enthusiastically names some of the participants and their activities:

A small group hangs around us, out of which will come an association titled: La Mansarde and composed of:

Varèse

➤ future prix de Rome in music.

Doyen

Bozon, licensed architect.

Chicon

➤ philosophers.

Lesage

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16 Mattis, 24.
Deubel, poet.

We are looking for painters and sculptors. This winter we will give *soirées musicales*. I recite my verses, all lamps turned off, in a small group, and bring the audience to tears.\(^\text{17}\)

**L’Abbaye de Créteil—Barzun—Simultaneity**

The letter by Deubel mentions Albert Doyen, and his name is connected with another poly-artistic group, L’Abbaye de Créteil. Doyen was an active member of the Abbaye, along with Albert Gleizes, Henri-Martin Barzun, Alexandre Mercereau, Charles Vildrac, and René Arcos.\(^\text{18}\) These men created an artist commune with a strong literary focus in Créteil for one year, and “then brought their movement back to Paris, where other adherents joined their activities.”\(^\text{19}\) Although there is no evidence that Varèse visited the Abbaye, Louise Norton verified that he was friendly with many of the founding members.\(^\text{20}\) The group ran a printing press, which reproduced their literary efforts, and Gleizes’s unpublished memoirs described their musical soirées:

> We recited and read the latest poems born of our poets; we reveled in musical ideas. Duhamel, banging without care on the piano or on the harmonium, evoked the spirits of Beethoven and Wagner.\(^\text{21}\)

Henri Barzun, whose financial assistance supported the commune, said the group’s “aim was to adjust their lives to this Machine Age, whose ambition was to give the new Century a

\(^{17}\) Ibid., 29.

\(^{18}\) Ibid., 34.

\(^{19}\) Louise Varèse, 56.

\(^{20}\) Ibid., 56.

\(^{21}\) Albert Gleizes, unpublished manuscript memoirs, ca. 1945–1950, [Pompidou]; quoted in Mattis, 33.
Literature and Culture commensurate with its momentous destinies.” Varèse was familiar with Barzun’s experiments in orphic poetry, where several poems were recited simultaneously from different places in the room. Barzun, as well as Apollinaire, the Cubists, and the Futurists claimed ownership of the term “simultaneity,” but the origin of this concept has been traced back to Henri Bergson’s description of the relationship between space and time:

What duration is there outside us? The present only, or if we prefer the expression, simultaneity. No doubt external things change, but their moments do not succeed one another, if we retain the ordinary meaning of the word, except for a consciousness that keeps them in mind. We observe outside us at a given moment a whole system of simultaneous positions, of the simultaneities which preceded them nothing remains.23

Historian Roger Shattuck provided another definition for simultaneity:

It represents an effort to retain a moment of experience without sacrificing its logically related variety. In poetry it also means an effort to neutralize the passage of time involved in the art of reading. . . . Simultaneism means a telescoping of time, a poetic technique that achieves the opposite effect from the regulated flow of music.24

These experiments in space and time would find parallels in Varèse’s mature compositions.

Another activity tenuously connected Varèse and Gleizes in 1906. Gleizes organized a socialist artistic student organization that sponsored lectures and activities at the new Popular Universities. Suzanne Bing, who was soon to be Edgard’s first wife, was involved as an actor, while Varèse created and conducted the Choeur de l’Université Populaire at Faubourg Saint-

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22 Louise Varèse, 55–56.

23 Bergson, quoted in Ivor Davies, “Western European Art Forms Influenced by Nietzsche and Bergson Before 1914, Particularly Italian Futurism and French Orphism,” *Art International* 19, no. 3 (1975): 49; quoted in Mattis, 36.

Antoine. With this chorus of working people he conducted music by known and respected masters, such as the Symphony No. 9 of Beethoven, as well as his own compositions at the Château du people.\(^{25}\)

### Wronsky—Helmholtz

While studying at the Conservatoire, Varèse became interested in the writings of Hoéne Wronsky and Hermann Helmholtz. Their ideas appealed to his scientific training and aligned with his concept of music as an art-science, returning music to its rightful place as one of the sciences of the quadrivium. Varèse explained this interest in 1959:

> When I was about twenty, I came across a definition of music that seemed suddenly to throw light on my gropings toward a music I sensed could exist. Hoéne Wronsky, a physicist, chemist, musicologist and philosopher of the first half of the nineteenth century, defined music as “the corporealization of the intelligence that is in sounds.” It was a new and exciting conception and to me the first that started me thinking of music as spatial—as moving bodies of sound in space, a conception I gradually made my own. Very early musical ideas came to me which I realized would be difficult or impossible to express with the means available, and my thinking even then began turning around the idea of liberating music from the tempered system, from the limitations of musical instruments and from years of bad habits, erroneously called tradition. I studied Helmholtz, and was fascinated by his experiments with sirens described in his *Physiology of Sound*. Later I made some modest experiments of my own and found that I could obtain beautiful parabolic and hyperbolic curves of sound, which seemed to me equivalent to the parabolas and hyperbolas in the visual domain.\(^{26}\)

Varèse struggled with the concept of space and time while forging connections between the geometry of the visual domain with that of sound. These were popular topics within contemporary art circles because artists were looking for new directions and often found inspiration outside of their discipline. Anne Florence Parks suggested that the composer’s

\(^{25}\) Mattis, 34.

“primary gain from Wronski was the freedom to go beyond traditional ways of thinking about music and to speculate about new relations of music and space.”27

Varèse’s effort to liberate music found empathy from Debussy, a friend and mentor. According to Louise Varèse, Debussy told Varèse, “You have a right to compose what you want to, the way you want to if the music comes out and is your own. Your music comes out and is yours,” and “Rules do not make a work of art.”28 These were significant words of encouragement for Edgard who had either left the Conservatoire or was about to leave. Many years later, Varèse described Debussy’s musical importance:

In his [Debussy’s] impatience with conventional formulae, his disregard of classical harmonic function, his glorification of the chord as self-sufficient sensation, his passion for tone-colour and timbre, his interest in oriental percussion musics with their apparent suspension of time, and above all in his call for a music of “continuous arabesque” that should reject traditional structural models and create its own forms continually anew.29

Debussy provided inspiration and example for Varèse’s break with traditional compositional techniques. Parallels can also be found in their reluctance to discuss the processes behind their music as well as their personal associations. “Varèse and Debussy (unlike many composers) shared keen interest and appreciation of the other arts; painters, writers and other kinds of artists and thinkers outnumbered musicians among their close acquaintances.”30

In 1907, Varèse received an exemption from military service, married Suzanne Bing in November, and moved to Berlin. After four years as a music student, Varèse needed to liberate himself from the traditions and doctrines of the Conservatoire. Although he chose to leave

27 Parks, 20.

28 Louise Varèse, 45.

29 Varèse’s remarks on the “old masters”; quoted in MacDonald, 42.

30 MacDonald, 43.
academia, Chou Wen-Chung believed that this experience instilled in Varèse a lifelong passion for early music:

During the four years as a student in Paris only his studies of the music of Medieval, Renaissance, and early Baroque masters with Charles Bordes at the Schola made an impact on him. He founded and trained choruses for the performance of this music almost throughout his life.31

**Berlin—Busoni**

Varèse’s decision to move to Berlin was likely predicated by his admiration of the German masters (Ludwig van Beethoven, Richard Wagner, Richard Strauss), and Busoni’s book *Entwurf einer neuen Ästhetik de Tonkunst* (Sketch for a New Esthetic of Music), which he had recently read. Busoni’s mantra announced, “Music was born free; and to win freedom is its destiny.”32 In his book, the German composer spoke about the search for freedom from traditional musical syntax and materials: “The function of the creative artist consists in making laws, not in following those already made.”33 Busoni’s words echoed Debussy’s ideas, and Varèse found another ally in the search for his musical voice.

The two composers established a lasting friendship based on their common interest in the liberation of music. They would discuss the tempered system’s limitations as outlined in Busoni’s book:

> We have divided the octave into twelve equidistant degrees, because we had to manage somehow, and have constructed our instruments in such a way that we can never get in above or below or between them. Keyboard instruments, in particular, have so thoroughly

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33 Louise Varèse, 49.
schooled our ears that we are no longer capable of hearing anything else—incapable of hearing except through this impure medium. Yet Nature created an infinite gradation—
infinite! Who still knows it nowadays?34

Varèse would later compare Busoni’s “infinite gradation,” or the musician’s sound continuum, to the painter’s color choices: “Just as the painter can obtain different intensity and gradation of colour, musicians can obtain different vibrations of sound, not necessarily conforming to the traditional half-tone and full tone, but varying, ultimately, from vibration to vibration.”35

Both men pushed for electronic instruments that were capable of producing a musical continuum of microtones and vibrations. Thaddeus Cahill’s dynamophone, an early electronic instrument, seemed capable of their requests when Busoni first heard of it:

I received from America direct and authentic intelligence which solves the problem [of a musical continuum] in a simple manner. I refer to an invention by Dr. Thaddeus Cahill. He has constructed a comprehensive apparatus which makes it possible to transform an electric current into a fixed and mathematically exact number of vibrations. As pitch depends on the number of vibrations, and the apparatus may be “set” on any number desired, the infinite gradation of the octave may be accomplished by merely moving a lever corresponding to the pointer of a quadrant.36

When Varèse finally had the opportunity to hear the instrument he was disappointed and gravitated instead towards the use of sirens and glissandi in his mature compositions.

Busoni’s ideas not only attracted musicians like Varèse and Gabrielle Buffet, also a student at the Schola Cantorum and the future wife of Francis Picabia, but painters, poets, architects, scientists and intellectuals from other fields.37 In contrast to this avant-garde environment, Busoni’s music was quite conservative and did not reflect his modern views.

34 Busoni, 24.


36 Busoni, 33.

Varèse later spoke of Busoni’s unadventurous compositional style and the elder man’s influence on him:

> It was as though his heart, loyal to the past, refused to follow his adventurous mind into so strange a future. In any case I owe a most tremendous debt of gratitude to this extraordinary man—not only one of the greatest pianists of all time, but a man of wide culture, a scholar, thinker, writer, composer, conductor, teacher and animateur—a man who stimulated others to think and do things. Personally, I know that he crystallized my half-formed ideas, stimulated my imagination, and determined, I believe, the future development of my music. Treating me as he did, as a colleague and a friend, was as fructifying to me as the sun and rain and fertilizer to soil.38

Eventually Varèse would put his mentor’s ideas into musical form.

Within this nurturing milieu, Varèse composed his first major work in 1908, *Bourgogne*, a symphonic poem for large orchestra. It was inspired by the Burgundian landscape of his youth and dedicated to his grandfather. Varèse showed the score to Busoni, Romain Rolland, Karl Muck, Gustav Mahler, and Richard Strauss, and received encouraging feedback. Through the influence of these people, the Blüther Orchestra under Joseph Stransky’s baton premiered *Bourgogne* on December 15, 1910. Unfortunately Varèse’s beloved grandfather passed away approximately one week after this performance. It was performed for an audience of regular concertgoers and elicited angry reactions. “Bruno Schrader, for example, announced in his review that it was an infernal din, mere caterwauling.”39 Perhaps Varèse passed final judgment on this piece when he destroyed the score in the early 1960s.

In an interview with Gunther Schuller many years later, Varèse described his use of divisi strings within *Bourgogne*:

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38 Louise Varèse, 50.

39 Ouellette, 36.
I was trying to approximate the kind of inner, microcosmic life you find in certain chemical solutions, or through the filtering of light. I used these strings unthematically as the background behind a great deal of brass and percussion.\footnote{Gunther Schuller, “Conversation with Varèse,” \textit{Perspectives of New Music} 3, no. 2 (1965), 33–34.}

Varèse described the work using scientific and visual analogies but offered no concrete insight into his compositional techniques. This quote does reveal the young composer’s purposeful break with traditional instrumental functions through the relegation of the strings to accompaniment behind the brass and percussion.

Varèse was involved in various other musical activities and projects while in Berlin. He received permission from Hugo von Hofmannsthal to adapt his play \textit{Oedipus} into an opera libretto and started composing three works for orchestra: \textit{Gargantua}, \textit{Mehr Licht}, and \textit{Les cycles du nord}. Only \textit{Les cycles du nord}, 1912–13, saw completion. The score was dedicated to Hofmannsthal, who provided financial support for Varèse. Unfortunately \textit{Les cycles du nord} was probably lost enroute to Béla Bartók a few days before the outbreak of “the Great War.”\footnote{MacDonald, 24.}

Concurrently, Varèse founded the Berlin Symphonischer Chor in January 1909, and directed it for approximately one year. The great theatrical director Max Reinhardt periodically hired this mixed chorus for his productions. Another noteworthy musical experience while in Berlin was the first performance of Schoenberg’s \textit{Pierrot Lunaire} in 1912. Varèse was in attendance and subsequently made Debussy aware of this work.\footnote{Ibid., 5–6.}

On a more personal level, Suzanne Bing gave birth to their daughter Claude in September of 1910. However, his wife was not adjusting to Berlin as well as Varèse, and she returned to Paris to pursue her acting career in 1913. Claude was ultimately placed with Bing’s mother,
Madame Kauffmann.\textsuperscript{43} Bing and Varèse parted amicably in that same year. Varèse left Berlin shortly thereafter, leaving his scores behind. The outbreak of war and other circumstances kept him from returning to Berlin until 1922. Unfortunately the warehouse where his scores were stored had burned down leaving no extant works from the Berlin period.

Throughout Varèse’s six years in Berlin, he made yearly visits to Paris and kept in contact with many of his associates there. He would often congregate with François Bernouard at \textit{La Belle Edition} whose offices were a meeting place for young writers and artists to discuss contemporary issues. He would also meet friends like Amedeo Mondigliani at the Closerie des Lilas when that Montparnasse café “was for the moment the favorite of artists.”\textsuperscript{44} Louise Norton revealed that Varèse frequently visited with Guillaume Apollinaire and Robert Delaunay at the latter’s home. Delaunay was involved in what Apollinaire called “Orphic Cubism” named for Orpheus, the god of music. His painting focused on the movement and juxtaposition of colors in order to define the form of a work:

\begin{quote}
What is of great importance to me is [the] observation of the movement of colors. Only in this way have I found the laws of complementary and simultaneous contrasts of colors which sustain the very rhythm of my vision. In this movement of colors I find the essence, which does not arise from a system, or an \textit{a priori} theory.\textsuperscript{45}
\end{quote}

Contrasting colors or timbres would become very important in Varèse’s mature works. However, he did not belong to any specific movement, instead he “would give his support to free whatever arts were in question from the inertia of academism.”\textsuperscript{46}

\begin{thebibliography}{1}
\bibitem{43} Louise Varèse, 101.
\bibitem{44} Ibid., 55.
\end{thebibliography}
One of Varèse’s friends, Gabriel Astruc, acted as impresario for his conducting career, organizing a European concert tour. Varèse traveled to Prague to conduct the Czech Philharmonic on January 4, 1914 in Smetana Hall. The concert of modern French music was extremely well received. Unfortunately, all of the other concerts were cancelled because of the war, and Varèse returned to Paris. He had planned to go back to Berlin, but the war kept him in the French capital.

**Italian Futurism**

The third Futurist manifesto came out in 1913, the same year as Varèse’s return from Berlin. Calvin Tomkins described this early twentieth-century movement:

> Literary, nationalistic, and aggressively political, it has been described as the first truly avant-garde movement because of its strident demands for a complete break with the traditions of Western art. Filippo Tommaso Marinetti, the movement’s charismatic entrepreneur and chief polemicist, had announced in his 1909 manifesto that “the world’s splendor has been enriched by a new beauty; the beauty of speed.” . . . Marinetti called for an art that would no longer concern itself with fixed moments, and art that would give visual expression the “universal dynamism” of modern life.47

The futurists romanticized war and saw the art of the future in machines and technology. Not only did they reject artistic traditions, they sought to destroy the art of the past. Futurism may have started as a literary movement, but it quickly spread into the genres of painting, sculpture, architecture, and music. The concepts of dynamism, simultaneity, and divisionism were characteristic of the movement.

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46 Louise Varèse, 55.

Dynamism was the Futurist’s attempt to suggest speed, motion, and the subject’s environment within a work of art. Clough provided the following explanation:

Dynamism is the simultaneous action of the particular and characteristic motion of the object (absolute motion), together with the transformations experienced by the object as a result of its displacements in a moving or motionless milieu (relative motion).

Motion was depicted through the rendering of countless successive views, while the environment’s influence deformed the objects. Certain elements were highlighted through the use of force lines; objects were simplified to their basic forms, but they inferred infinite volumes, masses, and planes. Varèse would adopt these terms to describe his music. Futurists rejected the traditional representation of perspective in painting, just as Varèse later rejected traditional harmonic and melodic vocabularies.

Simultaneity was a further departure from Renaissance perspective. Futurists depicted many images of the same object in motion and fused them. Viewers were asked to see all of these simultaneous actions and reconstitute them in their mind’s eye. They combined the subject’s typical motion with its actual motion (i.e., combined absolute and relative motion). Therefore, multiple and varied perspectives of the subject occur simultaneously. Analogous to visual simultaneity, Varèse challenged his listeners to hear many events concurrently.

The Futurists associated divisionism with the interpenetration of surfaces. Clough described this process “as the intersection of lines and volumes differing in thickness, heavity, and transparency, which produced a variety of chromatic tones in the resultant action of the pure,

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complementary colors.”

Joshua Taylor called divisionism the simultaneous interpenetration of surfaces, where the environment penetrates the object. The object is no longer easily distinguished from its background, and elements push against one another. Umberto Boccioni offered the following explanation:

An infinity of lines and currents emanate from our objects, making them live in the environment which has been created by their vibrations. Areas between one object and another are not merely empty spaces but continuing materials of different intensities, which we reveal with visible lines which do not correspond to any photographic truth. This is why in our paintings we do not have objects and empty spaces but only a greater or lesser intensity and solidity of space.

Boccioni’s quote describes a lack of distinction between object and environment and how varying intensities substitute for conventional perspective. In a 1936 interview, Varèse spoke of different intensities or “Zones of Intensities” as form delineators:

These zones [of intensities] would be differentiated by various timbres or colors and different loudnesses. Through such a physical process these zones would appear of different colors and of different magnitude in different perspectives for our perception. The role of color or timbre would be completely changed from being incidental, anecdotal, sensual or picturesque; it would become an agent of delineation like the different colors on a map separating different areas, and an integral part of form.

Varèse emphasized shifting intensities over a clear distinction between melodic content and accompaniment. He said, “There will no longer be the old conception of melody or interplay of

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melodies. The entire work will be a melodic totality. The entire work will flow as a river flows.”

Varèse had known Filippo Tommaso Marinetti for many years. Olivia Mattis proved that they were in contact between “1906–1914, primarily through Apollinaire in Paris and Busoni in Berlin, and was intimately familiar with their aesthetic debates.” Apollinaire introduced Varèse to Marinetti, while Marinetti was still publishing the magazine Poesia, even prior to the beginnings of Futurism 1909. Busoni took Varèse to see the Futurist exhibition in Berlin in 1912 where he bought Umberto Boccioni’s The City Rises, 1910, oil on canvas. In an interview with Gilbert Chase from the 1960s, Varèse described their contact:

I met Marinetti first through Apollinaire. And then, with Apollinaire, we were great friends. We had some fights too, but he was fighting with everybody. But we were always friends. And the futurists: the first time I knew about the futurists, after I had met Marinetti in Paris, it was when I went to their first exhibition outside of Italy: it was in Berlin. . . . And there I went with Busoni, and the first thing that they sold—it was 8000 marks at that time; it was a fortune—it’s Busoni who bought a Boccioni. And then I can show you too a word of Russolo, a dedication on his book about l’Arte dei Rumori.

Busoni had become friends with Boccioni in 1912, and the artist would later paint portraits of both Busoni and his wife. Varèse would also forge a friendship with the artist. When discussing The City Rises, Boccioni said that his work “reflected his understanding of Marinetti’s injunction that ‘no work which does not have an aggressive character can be a masterpiece.’”

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53 Ibid., 11.
54 Mattis, 56.
55 Gilbert Chase interview of Varèse; quoted in Mattis, 61.
56 Mattis, 62.
57 Umberto Boccioni, in a letter to Barbantini of May 1911, quoted in Ester Coen, Umberto Boccioni (New York, 1988), 96; quoted in Christopher Butler, Early Modernism:
mature music has been called aggressive, and the composer referred to himself as “a sort of diabolic Parsifal, searching not for the Holy Grail but for the bomb that would make the musical world explode and thereby let in all sounds, sounds which up to now—and even today—have been called noises.”58

Varèse and Busoni supported the Futurists pioneering spirit, but although they had both been labeled Futurists at one time or another, they found no inspiration in that music. Luigi Russolo and Balilla Pratella, the Futurist musicians, invented bruiteurs (French term), intonarumori (Italian term), or noise producing machines, and gave concerts with these machines. Varèse agreed that new instruments were necessary, but complained that these bruiteurs only recreated existing sounds:

We . . . need new instruments very badly. In this respect the futurist (Marinetti and his bruiteurs) have made a serious mistake. New instruments must be able to lend varied combinations and must not simply remind us of the things heard time and time again.59

This comment dates from 1916 when Varèse was already in New York, and was probably his response to being labeled a Futurist. He remained in contact with these men and even hosted the last Futurist concert in 1929. The Futurist’s influence on Varèse was mainly conceptual, encouraging a musical interpretation of dynamism, simultaneity, and divisionism.


French Cubism

Cubism was developing alongside Futurism, and national pride played a part in their rigorous debates. Strangely enough, the inventor of Cubism was a Spaniard, Pablo Picasso. Varèse, while still a student in Paris, had been acquainted with Picasso. This would have been around the time when the now infamous artist would have been working on or had finished his proto-Cubist work *Les Demoiselles d’Avignon*, 1907, oil on canvas. Upon Varèse’s return to Paris in 1913, he was still in contact with Picasso who was involved in collage and synthetic Cubism, while his followers, the Salon Cubists including Albert Gleizes, Jean Metzinger, and Jacques Villon, were at their apex. Picasso did not claim involvement with any school, and Varèse was working even more independently of the other artists within his medium. Like Picasso, he “never adopted anyone’s opinions wholesale.”\[^{60}\] Varèse later recounted an incident at Picasso’s studio:

> Before the First World War, when cubism was still shocking, it was in 1912 or 1913, I was in Picasso’s studio with the Spanish sculptor Manolo. Mediterranean by race and culture, Manolo’s preoccupation had always been to keep his art within the purest classical tradition. You can imagine what happened when Manolo’s impassioned purism clashed with Picasso’s originality. After a heated discussion, Manolo, having exhausted all his arguments, pointing to one of Picasso’s cubic women, said: “Anyway, in spite of all your cubism, Pablo, you can’t keep me from being your contemporary.”\[^{61}\]

The Cubists and the Futurists had many points of congruence, including their endeavors to break with traditional perspective and taught formulas. Both movements claimed simultaneity as well as multiple perspectives, but their executions and interpretations differed. In *Du Cubisme*, Gleizes and Metzinger explained how Cubists moved “around an object to seize from it several

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\[^{61}\] Louise Varèse, 54.
successive appearances, which, fused into a single image, reconstitute it in time.”\textsuperscript{62} The result is “a concrete representation of it, made up of several successive aspects. Formerly a picture took possession of space, now it reigns also in time.”\textsuperscript{63} Unlike the dynamism of the Futurists who painted moving objects, Cubists moved conceptually around static objects to paint them. Both groups considered the painting itself as the subject matter, in other words self-referential rather than referential. The work of art was a process, not an object. Color and shading became formal agents, and abstraction was welcomed. All of these ideas would find parallels in Varèse’s future music.

\textit{A Midsummer Night’s Dream}

With his Parisian colleagues Varèse began collaboration on a staged French version of \textit{A Midsummer Night’s Dream} by Shakespeare. Varèse was the music director, with music contributions expected from Erik Satie, Georges Auric, Igor Stravinsky, Maurice Ravel, Florent Schmitt, and Varèse. The writers were Jean Cocteau and Henri-Pierre Roché. Painters included André Lhote, Albert Gleizes, and José-Marie Sert. Extant correspondence implies that Pablo Picasso had dropped out of the project and was replaced by Gleizes.

The production was to be held at the Médrano circus in Montmartre, with real clowns playing the lighter characters. Although rehearsals started in 1915, the project fell through. \textit{A Midsummer Night’s Dream} predated and was similar in concept to \textit{Parade}, the theatrical collaboration between Cocteau, Picasso, Satie, and choreographer Léonide Massine for Sergey


Dyagilev’s Ballets Russes. *Parade*, with its block orchestration and use of everyday objects, such as a typewriter and a revolver as noise-makers, eventually came to fruition in 1917. Varèse is credited with introducing two of the collaborators for *Parade*, Picasso and Cocteau:

> It was at Cocteau’s request that Varèse introduced him to Picasso. Whether Varèse took Picasso to Cocteau’s, as Varèse related, or Cocteau to Picasso’s, as Cocteau stated in the film *Portrait Souvenir* by R. Stephane, hardly matters. . . . At any rate, this meeting of Cocteau and Picasso that Varèse brought about resulted in a fruitful collaboration beginning with *Parade*, which was presented by the Russian Ballet in 1917 with Cocteau providing the Scenario, Picasso the setting and costumes, and Satie, once more, the music.

With the onset of war, Varèse was drafted in April and stationed at the *Ecole de Guerre* in Paris as a bicycle messenger. Out of boredom, he applied for a transfer to the machine-gun battery. Instead, after a medical exam revealed that he had double pneumonia, Varèse was invalided out of the service after only six months. He would continue to have breathing problems throughout his life.

**New York—Arensbergs**

With no imminent conducting opportunities, Varèse decided to go to New York. His friend Karl Muck was the conductor of the Boston Symphony Orchestra, and Muck would be able to help him establish contacts. He boarded the Rochambeau on December 18, 1915 and after a twelve-day journey, arrived in New York on December 29 knowing only two words of English. Edgard would choose to stay in America, and circumstances would keep him from seeing Europe again until 1922. Mattis notes that, “Of all the modernists who arrived in New

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64 Mattis, 67–68.

65 Louise Varèse, 117–118.

66 Ouellette, 44.
York during the war, Varèse was the only composer, so it is once again to the artists of his generation that we must turn to establish a context for his ideas and actions.\textsuperscript{67}

During his first year in New York, Varèse had difficulty making a living, but establishing friendships was much easier. New York was home to many displaced French artists:

Other than Varèse they included painters Marcel Duchamp and Francis Picabia; Picabia’s wife, Gabrielle Buffet; Arthur Cravan, . . . ; Albert Gleizes and his wife Juliette Roche; painters Jean and Yvonne Crotti; poet Henri Martin Barzun and writer/art dealer Henri-Pierre Roché.\textsuperscript{68}

Through Marcel Duchamp, Varèse met Walter Arensberg, whose apartment provided a salon atmosphere for French ex-patriots as well as other artists sympathetic to modern art. French artists would also gather at Alfred Stieglitz’s Photo-Session, a small gallery at 291 Fifth Avenue. The address had been the inspiration for the title of a magazine associated with the gallery, 291.

In addition, by the spring of 1916, Varèse had moved into the Brevoort Hotel, which Louise Norton called “Paris in New York.”\textsuperscript{69} Therefore, Varèse was not alone in the big city.

The Conductor

Varèse received his first big musical break in America when he organized and conducted Hector Berlioz’s \textit{Grand Messe des Morts} on 1 April 1917 at the Hippodrome. The concert was dedicated to the dead soldiers from all nations, and it was extremely well received by the public and the critics. Unfortunately, the United States entered the war the very next day, making it difficult for him to secure future conducting engagements. In 1918, he did get an invitation to

\textsuperscript{67} Mattis, 94.

\textsuperscript{68} Ibid., 97–98.

\textsuperscript{69} Louise Varèse, 127.
conduct the Cincinnati Symphony Orchestra. Yet again, the public loved him, and the
performance received positive reviews. Louise Norton, recently separated from her husband, had
accompanied Edgard on this trip. Because of their morally questionable association, Varèse’s
upcoming tour of southern cities with the orchestra was cancelled. Through the support of
Gertrude Vanderbilt Whitney, among others, he founded the New Symphony Orchestra in 1919,
but after the public and critics panned the first concert, Varèse was replaced as the conductor.
Although the ensemble had been formed specifically to perform those works neglected by
established orchestras, Varèse’s programming was too progressive for the majority of the
performers and the public.

New York Dada

The 1917 Independents exhibition opened on April 10, and with the entry of Duchamp’s
*Fountain*, 1917, porcelain urinal on its back inscribed on the upper edge in black paint: R.
Mutt/1917, New York Dada came to the attention of the public. Dadaist Francis Picabia, a good
friend of Duchamp and a member of the Stieglitz and Arensberg circles, returned from Spain
shortly thereafter. Varèse roomed with Picabia during the summer in an apartment within
Norton’s house, the future Louise Varèse. During this hot summer, Varèse participated actively
in the New York Dada movement.

In the spring of 1917, a friend of Marcel Duchamp, the cubist painter and poet Francis
Picabia arrived in New York from Barcelona, where he had started his Dadaist-surrealist
magazine, *391*, abstracting the title from Stieglitz’s *291* by adding a unit to the first digit. Soon
after Varèse met Picabia, they became convivial companions and spent the summer in what, from Varèse’s stories, must have been a very Gemini month of drinking,
laughing, and girl-chasing. . . .
During the five or six months Picabia stayed in New York he brought out three numbers of *391* to which Varèse contributed a poem and two epigrams.\(^70\) Dada, which originated in Zurich at the start of “the Great War”, was anti-war and anti-art. The movement mainly revolved around literature and visual art, but some musicians were included. Both Varèse and Erik Satie were labeled Dada musicians. Olivia Mattis suggested that, “Each composer, in jest, promoted his works as a sort of anti-music, paralleling the visual artists’ proclamations of anti-art.”\(^71\) Varèse referred to his music as ‘organized sounds’ and to himself as “not a musician, but a worker in rhythms, frequencies and intensities.”\(^72\) The Dadaists were challenging the public’s idea of art, just as Edgard was challenging the traditional perception of music.

The New York Dadaists espoused contradictory artistic ideas. They supported the naivety of primitivism as well as the aesthetics of machines. Dadaists saw beauty and creativity in American technological and scientific advancements and imported this concept of beauty into their art. However, their artistic machines functioned only aesthetically, having no purpose outside of art. Varèse too was interested in the development of new musical machines. Paul Griffiths explained that Varèse “was less interested in science as an investigation of causes than in science as a generation of new images, ideas and phenomena. . . . His interest in science. . . was poetic rather than analytic.”\(^73\) Meanwhile, primitivism had interested the larger artistic community for some time. Accepting primitivism allowed Dadaists to abandon schooled

\(^{70}\) Ibid., 132–132.

\(^{71}\) Mattis, 124.


traditions and break rules. For Varèse primitivism supported his inclusion of “primitive” percussion instruments from other cultures.

“A corollary of the quest for the primitive is the dada notion that life is art: ordinary objects can be art objects, and every-day sounds can be music.” Duchamp’s *Fountain* was considered art, just as a siren was considered music. Neither the Dadaists nor Varèse were interested in the simple replication of objects and sounds; they were interested in broadening the traditional definition of art. Mattis provided the following analogy:

> Just as the technical innovations of cubism were conservative in comparison to the breakdown in the distinction between art and life that characterized Duchamp’s notion of dada, so does the revolutionary technique of Schoenberg’s serialism of pitch seem a timid advance in comparison with Varèse’s quest for the liberation of sound itself.75

Varèse would later repeatedly deny his direct involvement with the movement, but his associations, submissions, and participation within this movement are thoroughly documented by Mattis.76 This fertile environment was perhaps the catalyst that he needed to achieve a new compositional style. Ouellette states:

> Of course, it was after the breakup of Picabia’s group that Varèse was to renounce all his previous works and begin to compose what he considered his works. . . . His contact with the Picabian group alone certainly cannot explain the break with all his previous works, and above all not the appearance of the truly Varesian works. We must not forget the Bourgogne scandal of 1910, which had literally forced him out of the “beaten paths,” . . . And all this several years before the meeting with Picabia. Varèse himself had a personality strong enough to influence men like Picabia and Duchamp quite as much as they were able to stimulate him in return. There could be no question of anything but a meeting of creators on an equal footing.77

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74 Mattis, 136.

75 Ibid., 146.

76 Ibid., 122–148.

77 Ouellette, 71–72.
International Composers’ Guild

Varèse met Carlos Salzedo, French born composer, conductor and harpist, in 1918. Both men had studied at the Paris Conservatory, and they had similar acquaintances including Debussy and Maurice Ravel. They were interested in exposing Americans to modern music and worked together to found the International Composers’ Guild in 1921. Julianna Force, Gertrude Vanderbilt Whitney’s art secretary, elicited the financial support of her boss, thereby providing financial support for this venture:

When Mrs. Force heard of Varèse’s plans for organizing a music society entirely devoted to the performance of contemporary composers ignored by musical officialdom, she responded with enthusiasm, for they seemed to her to parallel Mrs. Whitney’s efforts to help young painters and sculptors who had no uptown dealer. The result was that Mrs. Whitney. . . became one of the principal sponsors of the ICG.78

Whitney had been a supporter of Varèse’s Hippodrome performance, the New Symphony Orchestra, and the Armory Show. Along with financial support for the Guild, Whitney would provide monetary assistance for two of the struggling composers: Varèse and Carl Ruggles.

The first performance took place in February of 1921 at the Greenwich Village Theater with three hundred people in attendance. During its six-year existence, it provided the American premiere of works by: “Bartók, Berg, Casella, Chávez, Cowell, Honegger, Hindemith, Kodály, Krenek, Malipiero, Miaskovsky, Milhaud, McPhee, Ornstein, Poulenc, Ravel, Respighi, Rieti, Rudhyar, Ruggles, Satie, Florent Schmitt, Schoenberg, Still, Stravinsky, Szymanowski, Vaughan Williams, Webern, and Wellesz.” 79 Varèse witnessed the performance of his own works as well.

78 Louise Varèse, 154.

79 Chou, 154.
After the first ICG performance, Varèse finally returned to Europe. He visited Busoni, who agreed to organize a German version of the ICG, called the *Internationale Komponisten Gilde*. This particular association lasted just long enough to give the German premier of *Offrandes* in November of 1927. Unfortunately, during this visit to Berlin Varèse learned that all of his pre-war scores had been destroyed in a fire.

*Amériques and Offrandes—Transitions*

Perhaps 1915–1917 should be considered an incubation period for Varèse’s creative direction because no pieces date from this period. Varèse composed *Amériques*, 1918–1922 and *Offrandes*, 1921 around the same time. *Amériques*, in the style of a symphonic poem, was published in 1925 by J. Curwen and Sons Ltd., London, and premiered by Leopold Stokowski on 9 April 1926 with the Philadelphia Orchestra. This, the original, required huge orchestral forces with an extensive percussion section including sirens. The audience “received the work with boos and hisses.”

Although Varèse said that he would not revise it, he did just that prior to the Paris premiere in 1929. The orchestration was slightly reduced and certain sections were reworked. Varèse initially provided the following description for the work:

I was still under the spell of my first impressions of New York, not only New York seen but more especially heard . . . As I worked in my Westside apartment . . . I could hear all the river sounds—the lonely foghorns, the shrill peremptory whistles—the whole wonderful river symphony which moved me more than anything ever had before. Besides, as a boy, the mere work ‘America’ meant all discoveries, all adventures. It meant the unknown . . . new worlds on this planet, in outer space, and in the minds of man.

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80 MacDonald, 105.

81 Ibid., 104.
Varèse would later downplay the referential nature of this note, wanting the music to speak for itself. Perhaps due to the huge forces required for the performance of either version, Amériques did not receive another performance during his lifetime.

In contrast, Offrandes is a diptych for soprano and chamber orchestra, with the first song dedicated to Carlos Salzedo, and the second to his new wife, Louise. It was premiered by the International Composers’ Guild on 23 April 1922 with Salzedo conducting and Varèse playing the cymbals. The composer’s mature style is again revealed in the augmented percussion requirements. Louise Varèse provides the following review:

Musical America summed up the songs: “fascinating rhythmic color is achieved in a little battalion of percussion in which the composer managed the big cymbal. . . . Carlos Salzedo conducted the pieces with skill. There was great enthusiasm and recalls for composer, singer and conductor. The first, Chanson de Là-haut, was redemanded.” This was the last time for many years that Varèse’s music would be greeted with unprotested enthusiasm.82

Musical Maturity

MacDonald suggests that, before coming to New York, Edgard “was a musical revolutionary in potentia, it was only when he came to the USA that he became a revolutionary in fact.”83 Perhaps the revolutionary was born with Hyperprism, 1922. The premier of this work was greeted by diametrically opposed reactions. People who did not like the music were asked to leave before the piece was performed in its entirety for a second time. Varèse had found his new compositional style. In an interview, Schuller asked Varèse to compare his mature compositions with his works completed before the 1920s. Varèse responded, “I believe they reflect a greater

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82 Louise Varèse, 174.
83 MacDonald, 83.
refinement of my earlier conceptions. I also became increasingly interested in internal rhythmic and metric relationships.”

*Hyperprism* is scored for nine wind instruments and nine percussionists. It is the second composition by Varèse to include a siren, the first being his huge symphonic poem *Amériques*. The percussion section in *Hyperprism*, besides including a siren, relies on percussion instruments that produce indefinite pitches. Perhaps because too much resonance would disguise the composition’s inherent rhythmic complexity, mallet instruments are omitted. The wind and percussion sections interact as well as operate independently, with segments where only one group plays. In contrast, *Octandre*, 1923 is scored for eight instruments, but no percussion instruments are used. The absence of percussion does not lesson the rhythmic interest, because the winds sustain the composer’s characteristic rhythmic activity. Besides the orchestration, one of the main differences between *Hyperprism* and *Octandre* is found in their large-scale forms. Varèse divided *Octandre* into three movements, while *Hyperprism* is one continuous movement.

These two works display some of the central characteristics of Varèse’s mature style. For instance, his new style rejects conventional thematic development and “generates melodic, harmonic, and rhythmic material by a process of continuous variation of germinal cells.” Instead of traditional melodies and functional harmony, Varèse juxtaposed and overlapped pitch classes like blocks of sounds. The resultant lack of harmonic direction creates a sense of stasis rather than motion, which is balanced by the unpredictable rhythmic alternation of blocks of

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84 Schuller, 35.

sounds. Varèse described this technique, “Taking the place of the linear counterpoint, the movement of sound-masses, of shifting planes, will be clearly perceived. When these sound-masses collide the phenomena of penetration or repulsion will seem to occur.” Varèse’s use of continuous variation and the interaction of sound-masses generate the form of his works.

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CHAPTER 3

INTÉGRALES

When attempting to describe the compositional style for Intégrales, Varèse’s own description of this work provides invaluable insights:

Intégrales was conceived for a spatial projection. I constructed the work to employ certain acoustical means which did not yet exist, but which I knew could be realized and would be used sooner or later . . . Whereas in our musical system we divide up quantities whose values are fixed, in the realization I wanted, the values would have been continually changing in relation to a constant. In other words, it would have been like a series of variations, the changes resulting from slight alterations of a function’s form or from the transposition of one function to another. In order to make myself better understood—for the eye is quicker and more disciplined than the ear—let us transfer this conception into the visual sphere and consider the changing projection of a geometrical figure onto a plane surface, with both geometrical figure and plane surface moving in space, but each at its own changing and varying speeds of lateral movement and rotation. The form of the projection at any given instant is determined by the relative orientation of the figure and the surface at that instant. But by allowing both figure and surface to have their own movements, one is able to represent with that projection an apparently unpredictable image of a high degree of complexity; moreover, these qualities can be increased subsequently by permitting the form of the geometrical figure to vary as well as its speeds . . .

Varèse’s explanation emphasizes unpredictable variations and movements of three-dimensional figures in space. The reference to higher mathematics and changing spatial perspectives reveals his sympathy for contemporary visual artists’ ideas. Space was of particular interest to Varèse because he considered it to be the fourth dimension in music. During a lecture in Sante Fe, NM, in 1936, he elaborated on this concept:

We have actually three dimensions in music: horizontal, vertical, and dynamic swelling or decreasing. I shall add a fourth, sound projection—that feeling that sound is leaving us with no hope of being reflected back, a feeling akin to that aroused by beams of light sent

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forth be a powerful searchlight—for the ear as for the eye, that sense of projection, of a journey into space.²

Based on these kinds of statements, theorists like Bernard have centered on the spatial aspect of Varèse’s music in order to understand his techniques. Other theorists have applied standard analysis techniques as well as developed analysis paradigms specifically for his music, but Varèse’s pieces have not revealed a compositional system. His compositional methods are malleable, perhaps in an attempt to avoid creating a method or system. Each work comes upon its own form naturally without submitting to any preconceived formal ideas.

**Form as Process—Crystallization—Open Rather than Bounded**

Scholars have labeled and broken *Intégrales* into two, three or more sections, but Varèse did not want the piece to be thought of as sectionalized. He wanted listeners to focus on the music as it unfolded. Throughout his life, he habitually equated musical form with the scientific process of crystallization:

Conceiving musical form as a resultant—the result of a process, I was struck by what seemed to me an analogy between the formation of my compositions and the phenomenon of crystallization. Let me quote the crystallographic description given me by Nathaniel Arbiter, professor of mineralogy at Columbia University:

“The crystal is characterized by both a definite external form and a definite internal structure. The internal structure is based on the unit of crystal which is the smallest grouping of the atoms that has the order and composition of the substance. The extension of the unit into space forms the whole crystal. But in spite of the relatively limited variety of internal structures, the external forms of crystals are limitless.”

Then Mr. Arbiter added in his own words: “Crystal form itself is a resultant [the very word I have always used in reference to musical form] rather than a primary attribute. Crystal form is the consequence of the interaction of attractive and repulsive forces and the ordered packing of the atom.”

This, I believe, suggests better than any explanation I could give about the way my works are formed. There is an idea, the basis of an internal structure, expanded and

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split into different shapes or groups of sound constantly changing in shape, direction, and speed, attracted and repulsed by various forces. The form of the work is the consequence of this interaction. Possible musical forms are as limitless as the exterior forms of crystals.³

When reading this quote, those of us schooled in the tradition of Western music and unfamiliar with Varèse’s works may associate crystallization with typical development techniques. However, *Intégrales* manipulates sound-masses, not melody and harmony. Conventional developmental techniques, such as sequential development of musical materials, are replaced by unpredictable deviations.

**Sound-masses**

Sound-masses are musical materials grouped by timbre/color, register/range, intervallic content, attack, rhythm, or dynamic/intensity associations. Varèse often grouped instruments by timbre and range, believing color and range to be agents of delineation. Chou provided the following description:

It seems that a *sound-mass* refers to a body of sounds with certain specific attributes in interval content, register, contour, timbre, intensity, attack and decay. *Sound-masses* seem to emerge out of the expansion of an *idea*—“the basis of an internal structure”—into the sonic space.⁴

For instance, at the beginning of *Intégrales*, the upper woodwinds, specifically the piccolos and the B-flat clarinet, form one sound-mass, and the low brass form another (Example 1).

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Example 1: Varèse, *Intégrales*, mm. 1–5
Example 1: Varèse, *Intégrales*, mm. 6–8
These masses are then manipulated by projection, interaction, penetration, and transmutations.

Chou Wen-Chung described the correspondence between these techniques:

The sense of projection of sound-masses obviously depends on the source location of the emission as well as the independent movement of each sound-mass as opposed to the others, When such sound-masses collide, the interaction tends to bring about penetration, during which certain attributes of one sound-mass are transferred to another, thus causing transmutations to take place and changing the attributes of each sound-mass.  

Basically, instruments are grouped into sound-masses, and the interaction between these groups causes change within individual sound-masses.

**Sound as Living Matter—The Liberation of Sound**

Varèse considered his sound-masses to be living organisms. Inspired by Wronski’s definition of music, “music is the corporealization of the intelligence that is in sound,” Varèse began thinking of the raw material of music as a physical phenomenon: sound vibrations entering the atmosphere, and then moving freely in space. Therefore, sound-masses would seem to fluctuate without any obvious stimulus. Because exact repetition is an unusual occurrence within nature, it is not surprising that exact repetition in Intégrales is equally rare.

*Intégrales* starts with a three-note “crystal” or cell performed by the E-flat clarinet (Example 1), which grows and transforms into the entire piece. This transformation starts very slowly, with the opening motive occurring thirteen times in some variation before being projected to a different pitch center at measure thirty-two when it drops into the horn part (Example 2).

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Example 2. Varèse, *Intégrales*, mm. 32–35

*The occasional English translations are those of the composer.*
The original idea is never repeated exactly.

Varèse’s interest in non-Euclidean geometry supported his need to liberate sound. Instead of the limited stepwise division of the musician’s sound continuum, he wanted to be able to use nature’s unlimited sound continuum. He sought to create sound trajectories in the shape of hyperbola, parabola, and spirals.\(^7\) To achieve curved sound, Varèse used non-traditional instruments and techniques. *Intégrales* includes a string drum or “lion’s roar” in the percussion section. Within the wind section Varèse created curved sound through pitch bending and glissandi. At measure 191, the oboe player is required to slide between two pitches a major sixth apart (Example 3).

The effect of curved sound is also achieved when the tenor trombone player is instructed to perform a glissando up to repeated notes (Example 4).

These instructions demand that the players produce pitches outside of the tempered system.

Varèse avoided organizing the pitches by key or scale; instead, the vertical and horizontal pitch content is free to extend in any direction: “I think of musical space as open rather than bounded, which is why I speak about projection in the sense that I want simply to project a sound, a musical thought, to initiate it, and then to let it take its own course. I do not want an a priori control of all its aspects.” Although, this statement alludes to random directions or chance events, Varèse did not renounce his responsibilities as composer and a closer inspection of his works reveals intelligent compositional choices.

Expansion

The beginning of *Intégrales* provides a clear example of Varèse’s variation techniques (Examples 1 and 5).

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8 Schuller, 36–37.
Example 5. Varèse, *Intégrales*, mm. 9–11
Example 5. Varèse, *Intégrales*, mm. 12–14

(1) avec baguettes tambour
The opening three-note motive in the E-flat clarinet returns three times but never in the same rhythm. When this idea is passed to the C Trumpet at measure ten, the pitch material is expanded to include a G-natural and an F-sharp. Subsequently, the expanded motive returns to the E-flat Clarinet, before moving to the oboe with the new pitches excluded. Varèse continues this process of continual variation for each occurrence of this idea.

The opening motive is also related to the background materials that join in measure five (see Example 1). The piccolos and B-flat clarinet enter with a triad that Jonathan Bernard labeled as a folded out derivative of the initial linear pitch presentation in the E-flat clarinet.\(^9\) A rotation, or inversion, where two pitches stay in the same place, while one pitch moves. Therefore, the initial chromatic spans were [2][6], after one note is displaced, the new spans become [6][8]. In this case, the larger interval [6] is retained and the new interval is achieved when the size of the larger interval is augmented by the smaller interval [2], expanding it to [8]. While it is unlikely that the listener will hear these interval spans, Bernard offered some explanation for the composer’s seemingly random note choices. However, he did not presume to suggest that a strict compositional system is in place; instead he highlighted spatial connections between musical events.

Chou Wen-Chung, using a different technique, links the low brass entrance in measure five with the expanded motive as performed by the C trumpet in measure ten (Example 1 and 5).\(^{10}\) The low brass triad of C, E, C-sharp or (014) foreshadows the C trumpet’s pitch set of F-sharp, G, B-flat or (014). Therefore, even though Chou and Bernard may not agree on an


\(^{10}\) For a detailed description see Chou Wen-Chung, “Varèse: A Sketch of the Man and His Music.” 158.
appropriate analysis technique to use for Varèse’s music, they both agree that *Intégrales* unfolds from certain cells.

**Projection**

Chou has described projection as the independent movement of sound-masses; in other words, the same material travels to a different plane or area in space. For instance, in *Intégrales* the opening three-note motive [2][6] stays in the same register for thirty-one measures, but at measure thirty-two it drops into the bass clef and is played by the French horn (Example 1 and 2). However, Varèse seemed to have applied more than one meaning to this term, describing projection as “the feeling that sound is leaving us with no hope of being reflected back, a feeling akin to that aroused by beams of light sent forth by a powerful searchlight.”¹¹ Instead of transference of specific intervallic content, this definition suggests disappearance or perhaps extreme registers. Varèse commonly pushed the limits of traditional instrumental ranges at the low as well as the high ends, and these extremes are often accompanied by extreme dynamics. Sometimes rests or breath marks follow these events; sound disappears with the breath mark at the end of measure thirty-six (Example 4). At other times, for example at the end of measure forty-six, sounds hang over and dissipate gradually, as if moving farther away from the listener (Example 6).

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Example 6. Varèse, *Intégrales*, mm. 44–47
Therefore, sound-masses are projected spatially or projected onto one another.

As a further example of projection, Varèse would often connect events or successive events by the same interval (Example 1). In measure five, the woodwind [1][13] and low brass [4][9] sound-masses enter. The highest note within each sound mass is equidistant to the predominant pitch (A-sharp) in the opening motive. In other words, Varèse used the interval span [13] from A-sharp to B in the woodwind sound-mass and the interval span [13] from A-sharp to C-sharp in the brass sound-mass. This interval span also determines the spatial boundary of the brass triad, where the lowest note of C to the highest note of C-sharp spans thirteen half-steps. If this were a singular occurrence, then we could ascribe it to chance, but distances between sound-mass boundaries as well as total range boundaries often show relationships.\textsuperscript{12}

\textbf{Penetration—Transmutation}

The interval span [13] returns more prominently at measure twenty-six (Example 7).

\textsuperscript{12} For further examples of intervallic relationships between boundaries see, Bernard, \textit{The Music of Edgard Varèse}. 
Example 7. Varèse, *Intégrales*, mm. 26–31
Previously this distance determined boundaries, but its function has changed. The [13] span has penetrated the interior structure of the new sound-masses. The low brass pitches of A, B-flat, B are separated by the span of [13], and the piccolo entrances, F-sharp, G, G-sharp, are divided by this same span. This functional change provides a kind of cadence before the motive projects itself into the French horn part at measure thirty-two.

**Rhythm = Form = Stability**

The movement of independent sound-masses at irregular intervals creates the form of Varèse’s compositions. His sound-masses weave in and out of the music, alternating between translucent and dense textures. “As Varèse said, the movement of sound masses was meant to take over the function usually ascribed to counterpoint. . . . contrapuntal parts lead independent lives yet at the same time belong together, and that neither quality by itself is sufficient.” At measure 121 of Intégrales, one of the more melodic sections of the work, the interaction of sound masses is clear (Example 8).

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The upper grouping in the oboe and clarinets interrupts the pitches held over from the previous measure, but the horn quickly overtakes this mass. The C trumpet and low brass join the horn, but then the lowest instruments branch-off to form their own identity. When the D trumpet enters in measure 124, it plays independently of the other instruments. Therefore, the groupings divide and reunite at random junctures. Bernard’s analysis of this section reveals that much of the pitch content is related to the opening motive.\textsuperscript{14} With the layering of similar pitch content and contrasting sound-masses, the listener is required to perceive many things simultaneously.

Besides rhythm’s formal function, Varèse considered continuous rhythmic activity to be a stabilizing device. The harmonic movement within this piece is slow and the pitch content is often static, therefore motion and continuity is obtained through rhythmic activity. We have already witnessed the rhythmic variety demonstrated by recurrences of the opening motive and the two accompanying sound masses, but it is the percussion section that retains the listener’s interest. For instance, throughout the first fourteen measures, while the same harmonic material repeats, the percussion parts become progressively more active (Example 9).

\textsuperscript{14} For a thorough pitch analysis of this piece see Bernard, \textit{The Music of Edgard Varèse}. 
Example 9. Varèse, *Intégrales*, mm. 6–8
Example 9. Varèse, *Intégrales*, mm. 9–11
Example 9. Varèse, *Intégrales*, mm. 12–14
Zanotti-Bianco wrote about Varèse’s musical language in his 1925 article for *The Arts*.

Before writing the article, Zanotti-Bianco had a chance to talk with the composer about his music. Zanotti-Bianco reaffirmed the importance of the percussion as a motion creating device and then elaborated:

> It [percussion] does not, from the outset, mark the accents intended to square the melodic design but, on the contrary, it penetrates the sound-masses, making them pulsate with a thousand varied and unexpected vibrations with an effect not unlike, in the field of vision, a ray of light striking through a crystal prism, giving it a multiple existence.\(^{15}\)

Varèse avoided the traditional supporting role of the percussion section; these instruments infuse the music with motion while generating multiple perspectives. Zanotti-Bianco’s description highlights rhythm’s importance within Varèse’s compositions and also provides a visual reference.

**Dynamics—Intensity**

Varèse’s dynamics, like his rhythms, generate motion and multiple perspectives. While pitched material often remains static, the dynamics are continually changing the intensity level of the music. Extreme dynamic contrasts are common within *Intégrales*, and they also serve to delineate sound-masses. At measure 133, the sound-masses can be identified by their dynamic markings (Example 10).

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Example 10. Varèse, *Intégrales*, mm. 133–37
The quickest changes are usually found on repeated or longer notes, thereby assigning contour and melodic interest to a static pitch. Instead of dynamics highlighting melodic material, they have become the melodic material. Bernard indicated that Varèse’s dynamic manipulation found its inspiration in the visual world:

Passages in which rapid fluctuations in dynamics affect one element, or several in succession, of a fixed pitch entity seem generally designed to realize a conception which Varèse transferred from the visual world: that of causing an object to shimmer through the application of some force, thereby displaying numerous of its various facets. However, the object remains the same.16

Dynamic fluctuation also gives the illusion of movement in space. Softer dynamics are perceived as farther away, and louder dynamics seem closer. The sound-masses exchange positions and functions, foreground versus background, within our auditory space. The speed of the dynamic change is relative to the speed of the movement.

The extraordinary orchestration and the carefully notated, complicated dynamic markings in *Intégrales* would strongly suggest that Varèse thought of a loud, brilliant, present sound (sound source) as creating a sound mass (auditory image) located in the vicinity of the listener. A soft, dull sound, on the other hand, is to be heard and understood as being “far away”. Diminuendi, crescendi, and other transformation would represent intermediate steps between these two extremes.17

Varèse founds his mature voice by rejecting the referential music of the Romantic period, the formal designs of Neo-Classicism, and the more recent twelve-tone system. He chose to develop his own malleable techniques based on the interaction of three-dimensional figures and their intelligent movement through space. Space constitutes the fourth dimension in Varèse’s music, and it is represented by register/range, timbre/orchestration, dynamics/intensities, and


temporal rhythmic displacement. By superimposing different sound-masses, he created a new kind of counterpoint and forced listeners to hear many events simultaneously. Mattis suggested that simultaneism was fundamental to Varèse’s technique: “It is clear from all the surviving evidence, musical and documentary, that simultaneism was not a mere technical trick for Varèse, but was a fundamental concept that governed every aspect of his music thought.”\(^{18}\)

\(^{18}\) Mattis, 44.
CHAPTER 4
MARCEL DUCHAMP: ARTISTIC INTERESTS AND AFFILIATIONS (1887–1920)

The Early Years

Henri-Robert-Marcel Duchamp was born on 28 July 1887 in Blainville, France to Justin-Isidore and Marie-Caroline-Lucie Duchamp. He was the third oldest child of six, with two older brothers and three younger sisters. His father, a notary, disapproved of the artist’s profession, but he obliged his four oldest children when they decided to become artists. Duchamp’s oldest brother, born Gaston, changed his name to Jacques Villon and occupied himself with painting and etching. The second born, who Duchamp considered “the family’s true genius,” became the sculptor known as Raymond Duchamp-Villon. Duchamp greatly respected his two older brothers, and followed their path into the artistic world. Notwithstanding the wide gaps in their ages, the siblings remained close throughout their lives. The familial dynamic sparked his artistic interests, as well as ignited his love of chess, which was to become a preoccupation later in life.

In September of 1897, Duchamp started his studies at Lycée Corneille in Rouen. The school mandated a strict intellectual regime, with courses in philosophy, history, rhetoric, science, languages, and drawing lessons. Philippe Zacharie, the drawing instructor and an active artist in Rouen, had also taught Duchamp’s brothers. In his final year, Duchamp won the Médaille d’Excellence, an annual prize offered to one student by Rouen’s Société des Amis des Arts. Receiving this prize reaffirmed his commitment to becoming an artist.

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1 Tomkins, 26.

2 Tomkins, 29.
Paris

Upon graduation in 1904 and with the support of his father, Duchamp relocated in Paris where he moved into Villon’s apartment in Montmartre. He briefly studied painting at the Académie Julian, an art school, and applied to the École des Beaux-Arts competition but was not accepted. By his own admission he preferred to play billiards. “I played billiards in the morning, instead of going to the studio! Nevertheless, I once tried entering the École des Beaux-Arts competition, which was a ‘flop’ as you say in English. The first test was to do a nude in charcoal—I flunked.” ³ However, Duchamp became motivated when the French Government passed a new military conscription regulation demanding that citizens complete two years of military service unless they worked within specific professions. As his grandfather had been a well-respected engraver, and this was one of the professions for which only one year of military service was required, Duchamp found work with a printer in Rouen and mastered the technique of engraving. After five months, “he passed the exam with ease and not a little guile, providing each member of the jury with a copy of a print he had pulled himself from one of his grandfather’s plates.”⁴ With this classification as an “art worker,” Duchamp began his term of military consignment in 1905.

After completion of his service, Duchamp returned to Montmartre, living on his own for the first time. His two older brothers had moved to the suburb of Puteaux, and with Frantisek Kupka as their neighbor, they created an informal artist colony:


Jacques Bon, Raymond’s artist brother-in-law, had discovered a group of inexpensive ‘pavilions with artist’s studios,’ with a shared garden in back, at 7, rue Lemaître in Puteaux. Gaston took one of them, Raymond and Yvonne took another, and the Czech artist Frantisek Kupka, a former neighbor of Gaston’s on the rue Caulaincourt, moved into a third, creating on the spot an artists’ colony that would give Puteaux a place in art history.\(^5\)

Duchamp would spend many leisurely Sundays visiting them. Due to his close contact with Kupka, “A practicing spiritualist medium and Theosophist, who was deeply interested in science,”\(^6\) the older artist and cartoonist functioned as a mentor alongside Duchamp’s brothers. During this time, he also met the Spaniard Juan Gris, and both of them pursued their common interests in commercial drawing. In 1907, Duchamp had his first professional success with five drawings accepted into the Salon des Artistes Humoristes organized by the editor of *Le Rire*.

Duchamp started spending the summers with his parents in the village of Veules-les-Roses, and he resumed painting. His foray into oil painting had begun in 1902 with some rather unimpressive impressionist landscapes. After having seen “the violently colorful paintings by Henri Matisse, André Derain, and Maurice de Vlaminck”\(^7\) in the 1905 Salon d’Automne, Duchamp’s 1907 paintings showed some Fauvist influences. Back in Paris, he finally sold one of his illustrations to *Le Courrier Français*. However, after being evicted from his apartment due to a two-day-long party, Marcel found a new place in Neuilly within walking distance of his brothers’ apartments. “Over the next five years, … spending a lot of time with his brothers, he

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5 Tomkins, 34.
7 Tomkins, 37.
would catch up with and assimilate most of the quickening currents and crosscurrents in modern art."\(^8\)

**Neuilly—Puteaux**

In 1908, both Villon and Villon-Duchamp were on the committee for the Salon d’Automne. This Salon and the spring Salon des Indépendants were established to counterbalance the Salon des Beaux-Arts, an exclusive exhibition limited to members of the Académie. These new exhibitions allowed any artist to submit their work to an elected jury. After an artist’s work was selected for display three times, then he was given the status of “sociétaire” and allowed to enter his paintings without the jury’s approval. The painting jury in 1908 consisted of Henri Matisse, Albert Marquet, and Georges Rouault; they selected three of Duchamp’s paintings.\(^9\) This was the young artist’s first public exhibition, but it was not long before he was given another chance to display his works.

In January of the following year, Duchamp designed a poster for and exhibited in the first exhibition of the Société Normande de Peinture Moderne in Rouen, organized by a friend, Pierre Dumont. In the spring, Duchamp’s works were chosen for the Salon des Indépendants and again for the 1909 Salon d’Automne. He sold one painting at each of these exhibitions and received a miniscule fee. However, recognition held greater importance than financial gain.

As was to be Duchamp’s trademark, his artistic style continued to evolve. In his own words, *Portrait of the Artist’s Father*, 1910, oil on canvas, was “clearly Cézannian in its

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\(^8\) Ibid., 38.

\(^9\) Ibid., 39.
balanced structure and its use of somber earth tones.”10 In contrast to this work, Portrait of Dr. Dumouchel, 1910, oil on canvas, showed the artist’s debt to the vibrant colors of Fauvism as well as his interest in contemporary ideas and science.

From 1910–1911 Duchamp produced a strange sequence of paintings, with strong mystical or Hermetic connotations. They differ stylistically from earlier works in their free use of Fauve distortion, both in colour and in the treatment of the human figure, and Duchamp confirmed the Fauve influence of Matisse and Van Dongen.11

Dr. Dumouchel, a good friend who had just completed his medical studies, was represented with a colored aura around his hands and a halo. It has been suggested that the inspiration for these effects came from recent X-ray research. “A number of theories have been advanced regarding the halos, many of them centering on the wave of popular interest in extrasensory perceptions and ‘emanations’ that was set off by Wilhelm Conrad Roentgen’s discovery of X rays in 1895.”12 Before choosing to become an artist, Villon-Duchamp interned at the Salpêtrière Hospital in Paris where he met Albert Londe, a leader in the field of X-rays. Other scholars credit these auras to discoveries and popular interest in “Magnetism (i.e., hypnotism by the supposed manipulation of magnetic fluids).”13 Even though scholars have been unable to pinpoint the origin of inspiration for the inclusion of these effects, they generally agree that the inspiration generated outside of the tradition of painting. Kupka was also experimenting

10 Ibid., 42.
11 Ades, Cox, and Hopkins, 26.
12 Tomkins, 42–43.
13 Henderson, Duchamp in Context, 3.
with “X-ray imagery (before 1910), and he and Duchamp seem to have pursued the subject in tandem.”

In 1910, Duchamp’s works were again selected for inclusion at the two independent exhibitions. With this, his third appearance at the Salon d’Automne, he became a sociétaire. Therefore, he no longer needed the jury’s approval in order to display his works. Duchamp’s style continued to evolve and included some symbolist elements.

Cubism

Although the architects of Cubism, Pablo Picasso and Georges Braque, were also living in Paris during this period, they did not display at the independent exhibitions. Braque’s paintings had been refused by the 1908 Salon d’Automne when Duchamp’s had first been accepted. However, Picasso and Braque displayed at Daniel-Henri Kahnweiler’s gallery, and their influence was strong within the artistic community:

A group of Cubist-influenced artists, most of whom had been painting until recently in the Fauve style, began to meet regularly in 1910 at one another’s studios and at the Closerie des Lilas, the famous old Montparnasse café, where the Tuesday evening gatherings … brought together the older generation of Symbolist poets and writers and the rising generation of artists. The Cubist group—Robert Delaunay, Jean Metzinger, Albert Gleizes, Henri Le Fauconnier, Fernand Léger, and one or two others—felt the need to discuss and analyze the radical innovations of Picasso and Braque: the flattening out of pictorial space within the painting, so that a picture was no longer a window to look through but an object in itself; the fusion of image with background; the juxtaposition of representational and abstract elements; the painting from different angles simultaneously.

The Puteaux artists were also involved in discussions about and experiments in Cubism. Duchamp’s first cubist experiment Sonata, 1911, oil on canvas, employed the four female

\[14\] Ibid., 4.

\[15\] Tomkins, 49.
members of his family for its subject. His muted color choices suggested Jacques Villon’s influence, and showed Duchamp moving away from the Fauvist style. This composition was not completed in time for the 1911 Salon des Indépendants; instead he submitted two Fauvist landscapes and an allegorical painting entitled *The Bush*, 1910–11, oil on canvas. This exhibition introduced and instigated dialogue between the Puteaux artists and the more vocal Cubist-influenced artists from the Montparnasse café.

The Cubist-influenced group had received permission from the hanging committee to display their paintings in the same room, because they thought that it would make a stronger impression. They were not disappointed; the paintings in Salle 41 drew large crowds and stimulated much debate. The Duchamp brothers’ works were displayed in the adjoining Salle 43, and the two groups started to associate more actively. Villon and Duchamp-Villon helped convince the 1911 Salon d’Automne’s hanging committee to allow the Cubists to once again hang their works in the same room. Duchamp’s contribution to the autumn exhibition included *Young Man and Girl in Spring*, 1911, oil on canvas and *Portrait (Dulcinea)*, 1911, oil on canvas. The latter painting, in muted tones and with multiple presentations of the same woman in various stages of dress, showed some influence from contemporary Cubist techniques. Also around this time, Duchamp-Villon asked his younger brother, among others, to paint something for his kitchen, and Duchamp completed *Coffee Mill*, 1911, oil on canvas, “his first painting to incorporate machine imagery and morphology.”

With the initiation of dialogue between the Duchamp group and the Salon Cubists, suddenly previously small Sunday gatherings included, among others, Cubists Albert Gleizes, Roger de La

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Fresnaye, Jean Metzinger, Fernand Léger, and Francis Picabia; writers Guillaume Apollinaire, Martin Barzun, and Alexandre Mercereau; and the insurance actuary Maurice Princet. Many of these same people, “including the Duchamp brothers, attended the Monday evening meetings at Gleizes’s studio in the suburb of Courbevoie, and they also went to the Tuesday night soirées at the Closerie des Lilas.”17

The Salon Cubists, similar to Picasso and Braque, rejected “traditional techniques for rendering figures and spaces (e.g., classical modeling and perspective).”18 Objects and space collided, often on the same plane, disregarding established rules of foreground and background. They emphasized the conceptual over the visual, through multiple perspectives and distortion of form. They wanted their art to engage the mind as well as the eye. However, unlike the original Cubists, the Salon Cubists were anchored in their theories and loved explaining themselves to anyone who would listen. Henderson described the discussion topics at their gatherings:

[They] ranged from literature and philosophy (particularly the writings of Henri Bergson) to science, technology, and mathematics, including non-Euclidean geometry and the highly popular idea of a fourth dimension. An outgrowth of the $n$-dimensional geometries developed in the nineteenth century, the fourth dimension signified a higher spatial dimension beyond visual perception and became a prominent element in Cubist theory.19

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17 Tomkins, 57.


19 Ibid., 4.
claimed that the shape of an object does not change. This mathematical discussion was obviously of interest to artists manipulating perspective:

The suggestions that space beyond our immediate perceptions might be curved or that the appearance of objects moving about in an irregularly curved space might change had a natural appeal to early modern artists. The existence of curved space would necessarily invalidate the linear perspective system, whose dominance since the Renaissance was being challenged by the end of the nineteenth century. Likewise, traditional means of rendering objects could hardly be adequate if no absolute, unchanging form for an object could be posited.²⁰

Non-Euclidean geometry supported the salon Cubists theory of object deformation in space.

Meanwhile, another rigorous topic of debate at the Puteaux gatherings, as well as among contemporary Frenchmen during the turn of the century, was n-dimensional geometry, commonly known as the fourth dimension. It was initially perceived as a higher dimension beyond our senses or a simultaneous dimension that we are unable to visualize, thereby inferring sense perception to be relative. However, the public’s understanding of the fourth dimension was splintered into varying viewpoints. For instance, Gaston de Pawlowski, a journalist with a background in science, believed that the fourth dimension “stood for true and complete reality,” “the revelation of the absolute,” and he believed that “the traditional idea of time as succession was replaced by the true simultaneity of all existence.”²¹ Charles Howard Hinton, an Englishman whose writings on the fourth dimension and its relationship with hyperspace philosophy were known by French artists through the writings of Esprit Pascal Jouffret and L. Revel, believed that space and time in the fourth dimension were interrelated:

We can never see, for instance, four-dimensional pictures with our bodily eyes, but we can with our mental and inner eye. The condition is, that we should acquire the power of mentally carrying a great number of details.

²⁰ Henderson, The Fourth Dimension, 6.

²¹ Ibid., 54.
If, for instance, we could think of the human body right down to every minute part in its right position, and conceive its aspect, we should have a four-dimensional picture which is a solid structure. Now, to do this, we must form the habit of mental painting, that is, of putting definite colours in definite positions, not with our hands on paper, but with our minds in thought, so that we can recall, alter, and view complicated arrangements of colour existing in thought with the same ease with which we can paint on canvas.22

Due to the confusing and conflicting information available on the fourth dimension, sometimes a simpler interpretation was applied: time as the fourth dimension.23 However, Albert Einstein’s space-time theories would not become popular until the 1920s. Therefore at the beginning of the twentieth century, the fourth dimension had many meanings and interpretations:

A variety of connotations were gradually added to the geometrical meaning of ‘the fourth dimension,’ so that by 1900 the term had philosophical, mystical, and pseudoscientific implications along with its alternative interpretation as time.24

Years later, in an interview with Pierre Cabanne, Duchamp said, “The fourth dimension became a thing you talked about, without knowing what it meant.”25 However, for the salon Cubists, the ideas of simultaneous dimensions beyond our vision served to justify their multi-perspective techniques. Although the artists at these gatherings legitimately tried to understand the mathematics behind the new geometries presented by Princet, Duchamp surpassed them in his interest and practical application of their concepts. At these gatherings, the young artist was an active listener rather than an active participant.

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24 Ibid., 11.

25 Cabanne, 24.
Bergson’s Influence

Henri Bergson’s theory of perpetual change was also a popular topic in Puteaux. Tomkins explained this idea:

Bergson’s philosophy was based on the perception that life means perpetual change. Science could never offer more than a partial explanation of our existence, he argued, because its method was to isolate and study particular aspects of an ever-evolving, ever-changing reality. In order to deal with the reality of change, something more than reason and intellect was called for—something that Bergson defined as intuition—‘the sympathy by which one transports oneself to the interior of an object in order to coincide with its unique and therefore ineffable quality.’… Bergson argued that nature itself is indeterminate—a process of continuous change and continuous creation that goes on forever and is basically unpredictable.26

Although this may sound like it aligns more comfortably with Futurism, Cubists found yet another rationale for getting to the essence of an object by deformation and multiple perspectives. His philosophies gave them permission to paint what they thought instead of what they saw. As previously discussed in chapter two, Bergson also suggested that the past leaves its imprint on the present. In other words, past and present actions exist simultaneously. His philosophy strongly influenced the Puteaux artists, who manipulated it to fit their theories. Cubists argued that their paintings represented past and present perceptions of the subject, not just a superficial one-sided retinal representation. The painter showed what he knew to be true about the object rather than what was visible to the three dimensional eye. In the literary collaboration of Gleizes and Metzinger, Du Cubisme, Bergson’s impact is felt:

Yet, by fall 1912 Cubist theory had taken a distinctly Bergsonian turn, as demonstrated by Gleizes and Metzingers’s Du Cubisme …. Although … the authors do mention non-Euclidean geometry to support their belief in the legitimacy of deforming figures, they are, on the whole, antigeometrical and antimathematical in their stance.27

26 Tomkins, 67.

27 Henderson, Duchamp in Context, 83.
New Directions

The gregarious Francis Picabia associated with the Salon Cubists, but Duchamp could have met him through the Société Normande de Peinture Moderne in 1910. They became friends during the infamous 1911 Salon d’Automne. Picabia would often drive out to Neuilly to visit Duchamp, interrupting Duchamp’s solitude and exposing him to a completely different lifestyle. Gabrielle Buffet-Picabia described Duchamp during this time:

In that period Picabia led a rather sumptuous, extravagant life, while Duchamp enclosed himself in the solitude of his studio in Neuilly, keeping in touch with only a few friends, among whom we were numbered. Sometimes he ‘took a trip’ to his room and vanished for two weeks from the circle of his friends.

Perhaps Picabia’s iconoclastic nature and Duchamp’s self-imposed solitude at Neuilly gave Duchamp the freedom to undertake a more personal interpretation of Cubism. He began experimenting with the representation of movement in painting, and in 1912 he completed the painting that would propel him to fame in the United States as well as permanently send him in a new artistic direction.

Nude Descending a Staircase, No. 2, 1912, Oil on Canvas (Figure 1)

Duchamp completed his Nude Descending a Staircase, No. 2 before seeing the Futurist exhibition at the Galerie Berneim-Jeune in February of 1912. Prior to this exhibition, Duchamp’s self-imposed isolation at Neuilly had kept him unaware of the Italian Futurist’s movement, as well as detached from the group discussions in Puteaux. He submitted the Nude, No. 2 for

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28 Tomkins, 62.


30 Tomkins, 79.
inclusion in the Puteaux Cubist’s room in the 1912 Salon des Indépendants opening on March 20. Due to the Futurist’s recent verbal attacks on Cubism and the fact that Duchamp’s *Nude, No. 2* seemed to support their ideas of movement in painting, the Puteaux artists balked at the inclusion of this work, believing that it would undermine their cause. Gleizes and Metzinger, the implicit group leaders, called upon the artist’s brothers to suggest that he make some modifications. Instead of making any changes, Duchamp removed *Nude, No. 2* from the exhibition. The painting was never intended to challenge Cubist doctrines, but rather Duchamp sought “to ‘detheorize’ Cubism in order to give it a freer interpretation.”31

While the Italian Futurists strove for the impression of movement, Duchamp “attempted to create a static representation—a kind of graph—of the body’s internal and external motion.”32 He achieved this reading through a technique he entitled “elementary parallelism” or “demultiplication,” where successive movements are shown through the parallel placement of slightly varied figures. Duchamp defined it as “repetition of a line equivalent to an elemental line (in the sense of similar at any point) in order to generate the surface.”33 In other words, repetition with a difference. The compositional process relies on multiplication and fragmentation, resulting in the creation of over twenty elemental lines to portray the nude and its descent. Instead of using a skeleton or a human representation for this traditional subject matter, Duchamp striped his nude of her flesh and features and substituted a quasi-mechanized or linear representation. This approach “established a relay between an ‘elastic’ body and a geometric

31 Joselit, 48.

32 Ibid., 54.

system,“34 playing the immensurability of the human form against the measurability of lines and forms. His choice of lines to represent the nude stems from his interest in the fourth dimension, where n-dimensional geometry reduces a plane to a line crossing through to an unseen dimension. Therefore, Duchamp inferred volume without displaying it for the eye: “A form passing through space would traverse a line; and as the form moved the line it traversed would be replaced by another line—and another and another.”35

A further borrowing from science and technology is revealed in Duchamp’s use of circular formations of dots to suggest movement. He found the idea for this in Etienne Jules Marey’s chronophotographs of successive movement superimposed on a single photographic plate. “In these images the contrasting set of lines and dots Marey placed on the costume of the moving figure produced a clear record of linear translation, just as the dotted circle in Duchamp’s painting suggest the circular motion of the nude’s elbow.”36 The artist was looking outside of traditional painting techniques to find inspiration and a new direction.

While the Puteaux cubists used multiple perspectives of static objects to achieve a higher dimension in their painting, Duchamp drew successive perspectives of an object in order to move beyond three-dimensional perception. He considered the Cubist theories too rigid and was looking for a freer interpretation. By late 1912, Duchamp strove to put art at the service of the mind instead of the eye by liberating art from its traditional retinal focus and creating a thinking-

34 Joselit, 53.


36 Henderson, Duchamp in Context, 11.
man’s art. He continued on this path, constantly reassessing his techniques, never repeating himself.

**Impressions d’Afrique—Munich—Salon d’Or**

In June of 1912, Duchamp went to the theatre production of Raymond Roussel’s book *Impressions d’Afrique* with the Picabias and possibly Apollinaire. The play, which centered on:

the adventures of a group of characters flung together after a shipwreck on the African coast, contained a number of bizarre proto-Surreal episodes surrounding peculiar ‘inventions’ whose linguistic origins Duchamp was quick to penetrate. Several of these result in biological-mechanical hybrids, such as the character whose lungs are replaced by a system of tubes connected to her clothing; such human-machine analogies may well have stimulated Duchamp’s successive realizations of the Virgin and the Bride.³⁷

Beyond the anthropomorphous characters, Duchamp was impressed with how the play was unique unto itself. There were no models for Roussel’s creative approach. Years later Duchamp spoke of the play’s impact. “I saw at once that I could use Roussel as an influence. I felt that as a painter it was much better to be influenced by a writer than by another painter. And Roussel showed me the way.”³⁸

Duchamp left for Germany soon after seeing the play, where his creative work seized upon the machine-inspired forms encountered in *Impressions d’Afrique*. He spent two months in Munich leading “a completely isolated existence, free of family ties or distractions of any kind.”³⁹ While in Germany, Duchamp finished the first study for *The Bride Stripped Bare by Her Bachelors, Even* [*The Large Glass*], 1915–23, oil and lead wire on glass. He also painted *The

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³⁷ Ades, Cox, and Hopkins, 55.


³⁹ Tomkins, 93.
Passage from Virgin to the Bride, 1912, oil on canvas and The Bride, 1912, oil on canvas. He was moving abruptly away from Cubism.

Duchamp returned to Paris to find that Gleizes and Metzinger had decided to include him in Du Cubisme and to allow the exhibition of Nude, No. 2 in the upcoming exhibition; the Salon d’Or, which was ultimately considered Cubism’s apex. By this time, his Nude, No. 2 had already been shown in Barcelona with little effect, and its appearance at the Salon d’Or produced the same result. Marcel was disillusioned with group associations, and when the salon opened, he left on a road trip with Picabia and Apollinaire. “For nearly a year, ever since he had removed his offending Nude from the Indépendants exhibition, Duchamp had been moving away from the concerns of other artists,”
40 and had taken a job as a librarian at the Bibliothèque Sainte-Geneviève. He avoided “all conventional forms of painting and drawing,”
41 focusing instead on mechanical drawings and aesthetic selection through the process of chance.

Walter Pach displayed Duchamp’s Nude, No. 2 at the International Exhibition of Modern Art, commonly known as the Armory Show, in February and March of 1913. The painting received enormous attention from the press, and all of his paintings sold. This was his biggest commercial success to date. Meanwhile, back in Paris, Duchamp was experimenting with the concept of what is art by giving artistic intent to items traditionally considered utilitarian. But with the outbreak of war in 1914, and Duchamp’s inability to serve for health reasons, America offered an appealing change for the artist. He contacted Pach and enquired as to whether he would be able to find employment without resorting to selling canvases.

40 Ibid., 113.

41 d’Harnoncourt and McShine, 14.
New York—The Arensberg Circle

Pach greeted Duchamp when he arrived in New York on 15 June 1915, and after housing him for a few days, arranged for him to stay in Walter and Louise Arensberg’s apartment at 33 West Sixty-seventh Street. The Arensbergs had rented a house in Connecticut for the summer, but they came into New York periodically. Arensberg and Duchamp hit it off immediately:

Over the course of the next two to three months, the artist and his collectors would establish a friendship and working rapport that was to last the rest of their lives. For Duchamp, the Arensbergs represented his most devoted American Patrons, for the Arensbergs, Duchamp was to become their most trusted adviser and confidant.42

The Arensberg’s individual inheritances had allowed them to assemble an impressive art collection, including paintings or sculptures by Picasso, Braque, Gleizes, Villon, and Matisse. At that time, their apartment was one of only a few places in New York where avant-garde art could be viewed. Before long, Duchamp’s works of art would outnumber any other artist’s within their collection.

Marcel earned money by teaching French lessons, and these lessons had the added bonus of helping him learn English. However, his lack of English language skills was not a major concern, because Picabia had arrived a few days before him, and other acquaintances would arrive shortly. In October, Gleizes arrived with Juliette Roche, his new wife, and Duchamp “arranged a dinner in their honor at the Brevoort [Hotel], where they met the Arensbergs, Alfred Stieglitz, Joseph Stella, Man Ray, Louise Norton, Max Weber, and several other American artists in the Arensberg and Stieglitz circles.”43 The Brevoort Hotel’s basement café boasted French

42 Naumann, 36.
43 Tomkins, 150.
owners, managers, and waiters, as well as a clientele that included many French officers. At the Brevoort, French ex-patriots found their home away from home.

Shortly after Duchamp’s arrival, the press started to request interviews, and the artist was happy to oblige. The subsequent comments revealed his admiration of American architecture as well as the accepted practice of destroying older buildings to make room for new ones. These opinions were paralleled in his views on art. “In nearly all of his interviews, Duchamp condemned the attention and respect that had been accorded the art of the past—including his own—a staunch defiance of tradition that caused several journalists to label him an ‘iconoclast.’”44 When interviewers or acquaintances would question him about the Nude, No. 2, Duchamp was less than enthusiastic about participating. He once responded, “I do not explain it. It is, after all, the fourth dimension.”45 He preferred to live in the present rather than dwell in the past.

Once in New York, Duchamp focused on his magnum opus, The Bride Stripped Bare by Her Bachelors, Even [The Large Glass]. He had made most of the plans for The Large Glass before his arrival in New York, but the assembly began in New York. In exchange for paying his rent, Duchamp promised this work of art to the Arensbergs. Many of his creations during this period were gifted to friends, because he did not want to earn his living as an artist.

Another idea born in France, the readymade, was to come to full fruition in the United States. Duchamp bought an ordinary shovel at the hardware store and labeled it In advance of the Broken Arm (from) M. Duchamp, 1915, wood and galvanized-iron snow shovel. With this action,

44 Naumann, 37

Duchamp elevated an ordinary object to the status of a work of art just by claiming it to be art. Therefore, he was pushing the limits of art. “Years later, he explained: ‘The readymade can be seen as a sort of irony, or an attempt at showing the futility of trying to define art.’”

The Arensbergs provided the perfect environment for idealists, innovators, and iconoclasts. Walter Arensberg, with a background in English, philosophy and aesthetics from Harvard, had recently turned his energies towards cryptography within the writings of Dante and Shakespeare, and he enjoyed the company of artists and poets. From 1915–20, their apartment became the meeting place of New York’s avant-garde, with Duchamp as master of ceremonies.

By the fall of 1915, the Arensberg’s gatherings included their literary friends, French artists escaping the war, and a small group of Americans:

Louise Arensberg referred to the group as their “circle of friends,” and years later, many would come to identify the group collectively as “the Arensberg Circle.”

Those who made up the circle can be divided into roughly three categories:

- Walter Arensberg’s literary associates and/or friends from Harvard, who were frequent visitors to the apartment in the early years just after the Arensbergs moved from Boston to New York (Wallace Stevens, William Carlos Williams, Carl Van Vechten, Fania Marinoff, Donald Evans, Pitts Sanborn, Alfred Keymorg, William Ivins, Elmer Ernest Southard, Allen and Louise Norton, and others…);
- French artists, painters, sculptors, musicians, writers, etc., who sought refuge in New York during the years of the First World War (Marcel Duchamp, Francis Picabia, Henri-Pierre Roché, Albert Gleizes and his wife, Juliette Roche, Jean and Yvonne Crotte, Edgard Varèse); and a host of Americans who would carry the legacy of these European contacts well into the twentieth century (Man Ray, Walter Pach, Charles Demuth, Charles Sheeler, Morton Schamberg, John Covert, Katherine Dreier, Beatrice Wood, Clara Tice, Joseph Stella, Florine Stettheimer, and others).

In the evenings, the Arensbergs created a salon atmosphere where friends would come and go at will. At midnight, Louise would roll out a cart of refreshments, and many a struggling artist

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47 Naumann, 94–95
indulged. It was a lively environment of chess, music, and drinking. Naumann described the intellectual environment: “Conversations at the Arensbergs’ were intense, topical, and always engaging, ranging in subject from the current state of the arts to the rationality of Freudian analysis.”48

The Society of Independent Artists—Dada

In 1917, the conversation included plans to mount an exhibition of modern art based on the model of the Salon des Indépendants in Paris; if an artist was a member of the Society of Independent Artists, then he was allowed to show two works at the annual exhibition. The board of directors included Walter Arensberg, Duchamp, Walter Pach, and Katherine Dreier, to name only a few, and “many of the society’s meetings and planning sessions took place at the Arensberg apartment, where Duchamp’s subtle influence could often be felt.”49 Artists’ works were hung in alphabetical order, and the starting letter R was drawn from a hat. Due to the lack of any submission limitations, most of the entries were not of an avant-garde nature. Duchamp submitted the most infamous entry, entitled Fountain under the pseudonym R. Mutt.

Although the whole point of the exhibition was to allow the artist to decide on what he wanted to display, Fountain was rejected. The committee voted against the idea that a signed urinal could be considered art. Dreier voted to exclude the work, not knowing that it was Duchamp’s submission. Arensberg and Duchamp resigned and their ideas were published in The Blind Man, a short-lived Dada publication:

48 Ibid., 28.

49 Tomkins, 180.
Whether Mr. Mutt with his own hands made the fountain or not has no importance. He
CHOSE it. He took an ordinary article of life, placed it so that its useful significance
disappeared under the new title and point of view—created a new thought for that
object.50

The spirit of New York Dada was alive and well in *Fountain*.

**Tu m’, 1918, Oil and Pencil on Canvas, with Bottle Brush, Three Safety Pins, and a Bolt
(Figures 2 and 3)**

Duchamp had not painted on canvas for four years when he accepted Katherine Dreier’s
commission to paint a work to fit in her library in a narrow space above a bookcase. Art
historians are unsure as to his reasons for accepting this project, but many of them consider it to
be one of his masterpieces. Duchamp himself dismissed it, and the title is presumed to express
his feelings about the project and perhaps the women who commissioned it. *Tu m’* is often
translated by art historians as *Tu m’emmerdes*, meaning you bore me. The ambiguous title gives
viewers the freedom to select a French verb beginning with a vowel of their choice. Therefore,
the title is as unique as the viewer.

*Tu m’* pays homage to many of Duchamp’s past works through obvious visual references.
Two of his readymades, *Bicycle Wheel*, 1913, bicycle wheel mounted on painted wooden stool
and *Hat Rack*, 1917, wooden hat rack, reveal themselves as shadows within the work of art.
Also, tracings from the *3 Standard Stoppages*, 1913–14, three threads glued to three painted
canvas strips, each mounted on a glass panel, housed in a wooden box, are incorporated into *Tu
m’*. Juxtaposed with these reflections from the past are renderings of a common set of hardware
paint samples and a pointing hand signed A. Klang. Other oddities include an actual bolt affixed
to the canvas seemingly holding the paint samples together, two real safety pins holding together

50 Ibid., 185.
a painted rip in the canvas, and lastly, a bottle-brush extending approximately twenty-three inches straight out from the canvas. Therefore, the bottlebrush creates a different perspective when the viewer moves to a different location (Figure 3). From his title to the inclusion of a bottle-brush, this work is a perfect example of Duchamp's love of multiple interpretations and perspectives.

This work of art fractures traditional approaches to form and perspective in painting through a multi-dimensional approach, once again revealing Duchamp’s interest in non-Euclidean geometry and the fourth dimension. He supported the contemporary opinion that three-dimensional objects were shadows of objects from the fourth dimension, two-dimensional objects were shadows by three-dimensional objects, and one-dimensional objects were shadows by two-dimensional objects. Therefore, the bolt, bottle-brush, and safety pins are shadows of objects from the fourth dimensions. They could also be interpreted as readymades, “Manufactured items that Duchamp promoted to the status of works of art simply by selecting and signing them.”

Alongside these objects, Duchamp used a projector to paint shadows of some of his earlier readymades as well as the shadow of a corkscrew. Although there are no records proving the existence of such a readymade, it may have existed at one time. Because the readymades were not always recognized as works of art, they did not always survive. These shadows are two-dimensional representations of three-dimensional objects. To further support this study in dimensions, Duchamp created a trompe-l’œil illusion by drawing a tear in the canvas and then attaching two safety pins to hold the virtual rip together. One could read the tear as the pathway between our reality and the fourth dimension.

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51 Tomkins, 12.
Perhaps making reference to art as a commodity, Duchamp enlisted A. Klang to draw a pointing hand on the canvas and Yvonne Chastel was tasked with recreating color samples from a catalogue for oil paints. Color, “Often considered the most ‘intuitive’ quality in painting, is rationalized—and commodified”\(^{52}\) by Duchamp’s non-exclusive inclusion of color samples. Within this painting, the artist and the artisan become one. The artist’s taste and the traditional complementary color combinations found on the color wheel are ignored, thereby breaking away from its time-honored importance within the painting establishment.

The influence of non-Euclidean geometry, or the geometry of curved spaces, is represented by Duchamp’s quotation of his *3 Standard Stoppages*. The original work of art developed out of the artist’s interest in the non-Euclidean concept where the shape of objects is determined by the space in which they exist. If the object is moved in space, the shape of the object will change. Duchamp dropped three pieces of string, each one meter in length, from the height of one meter above a horizontal painted canvas. Once they landed on the canvas, the individual strings took different forms, thereby creating what Duchamp called “the meter diminished.”\(^{53}\) Duchamp fabricated wooden sticks based on these curved forms to function as the new measure of a meter. These lines show up on both the left and right sides of the canvas for *Tu m’*.

On the right side, the tracings initially appear to be one-dimensional, but then Duchamp attached colored lines that recede into the background. The extension of these colored lines into a second dimension creates the perspective of three dimensions.\(^{54}\) Superimposed onto these

\(^{52}\) Joselit, 64–65.


\(^{54}\) Joselit, 65.
tracings and colored lines are numerous overlapping circles, which for Duchamp suggested a “transition from the space of everyday life to the four-dimensional continuum.”55 The circle itself was a figure of “dimensional collapse,” for Duchamp. The rotation of a horizontal line on a vertical axis creates a circular motion where left and right become synonymous or displaced by “two isomorphic but directionally opposite continuums.”56 The term isomorphous describes a chemical compound that can crystallize into a form that is similar to another chemical compound. Duchamp again revealed his interest in science and played with dimensional associations.

Buenos Aires

Due to the Arensberg’s marital problems and the change in American society after entering the war, New York held less appeal for Duchamp. With Yvonne Chastel, he left for Argentina in the summer of 1918 with the intention of staying there for an extended period of time. At this time, Duchamp did not know that “The Great War” would quickly come to a close. Within a month of his arrival and one month before the armistice was signed, Duchamp received news of Raymond Duchamp-Villon’s death. While serving in the military, Duchamp-Villon had caught an infection from one of the soldiers he had been treating.57 Duchamp decided to remain in Buenos Aires for a little longer, dividing his time between playing chess and continuing his

55 Ibid.
56 Ibid., 66.
57 Tomkins, 208.
plans for *The Large Glass*. He finally sailed for France in June of 1919 and returned to New York in December.

**New York Revisited**

Upon his return to the United States, Duchamp found things quite changed. The Arensberg’s salons were a thing of the past partially due to a depletion of funds as well as prohibition. Walter and Louise Arensberg were traveling regularly to California, and many of the circle had dispersed. Also, several of the galleries empathetic to modern art had closed. However, Katherine Dreier had the idea of opening an educational museum of modern art in New York. Through her initiative and persistence, the Société Anonyme, Inc. was created. Duchamp, Dreier, and Man Ray were the officers. Over the next twenty years, this museum would hold eighty-five exhibitions.58

*Rotary Glass Plates (Precision Optics), 1920, Five Painted Glass Plates, Wood and Metal Braces, Turning on a Metal Axis, Electrically Operated (Figures 4 and 5)*

With this work of art, Duchamp reprised his interest in motion and art. Instead of returning to the *Nude*’s elementary parallelism, he chose to create actual motion through the development of an electronic device. On five rectangular glass plates of different lengths, Duchamp carefully drew black curved lines and mounted them onto a horizontal metal rod with several inches of separation. While at rest, the five plates were on different planes, but when in motion the viewer, standing directly in front of the device at the distance of one meter, would

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58 Tomkins, 226.
perceive continuous concentric circles on one plane (Figure 5). However, if the viewer stood in a different location, the varying planes would become evident.

By limiting himself to black and white, Duchamp was experimenting with reflected light and the virtual colors created through this process. “Duchamp would have been familiar with the effects of virtual, subjective color produced in optical experiments by rotating black-and-white forms.”

Therefore, color selection, which is traditionally a very personal choice for artists, becomes prescribed by science and the viewer’s perception. Along with reflected light, Duchamp used circles and motion in *Rotary Glass Plates* to traverse dimensions. This machine, with its five propellers, is further evidence of Duchamp’s knowledge in and preoccupation with contemporary science and technology.

59 Ibid.
CHAPTER 5
INTERROGATION OF THE COMPOSITIONAL PROCESS: VARÈSE’S INTÉGRALES
AND WORKS OF ART BY DUCHAMP

Duchamp and Varèse found inspiration in science, higher mathematics, and technology as well as in the innovations of their artistic colleagues. Through their connections with or participation in Cubism, Futurism, and Dadaism, they were exposed to cutting-edge contemporary artistic dialogue that shaped their ideas. Therefore, this discussion will start with a comparison of how each artist features techniques and concepts associated with contemporary artistic rhetoric.

Repetition—Multiple Perspectives

In Intégrales, Varèse used inexact repetition to create form and to infer the fourth dimension, which he perceived as intelligent three-dimensional musical figures moving through space. Starting with minimal melodic material, the composition grows out of slight deviations in the melodic figure; the motive may be shortened, lengthened, metrically displaced, or re-orchestrated. Varèse moved the figure in its temporal environment as well as in its spatial environment. By re-orchestrating this figure for a different instrument, Varèse caused the listener to hear the music shift in space. For instance, if the exact same pitches are used but the motive is performed by a different player within the ensemble, the listener will perceive the music to have moved right, left, backward, or forward in space depending on the new origin of the sound. Because the performers are sitting fairly closely together and the music is quite complex, it would be very difficult for the listener to hear the music’s spatial movement. Perhaps the effect could be described as analogous to the illusion of throwing one’s voice. However, if the pitches are also changed, then the figure will move higher or lower in space. In measure thirty-two, the
opening figure drops into the horn part, thereby moving the motive to a lower plane (Examples 1 and 2). The listener will perceive a shift of vertical and horizontal planes based on the changes to register and performer location.

When these three-dimensional figures, or musical objects, are shortened, lengthened, or metrically displaced, the listener hears multiple perspectives or renderings of the same object. For instance the opening motive returns in altered rhythms (Example 1). Each successive statement moves in its temporal environment with the pitch content remaining static. Therefore, unlike the Cubists, Varèse did not move the spectator around the object, and contrary to the Futurists, Varèse depicted several tonally static representations of the motive’s progress. The object remains static, while the listener hears successive temporal statements.

After measure thirty-two and upon increased interaction between the sound-masses, the original pitch content gradually disappears or becomes abstracted beyond recognition. New sound-masses move into the listener’s foreground and are manipulated through similar processes of inexact repetition. Throughout Intégrales, Varèse moved different three-dimensional geometric figures in and out of our perception by way of unpredictable variation of space and time.

Much of our discussion about repetition within Intégrales is conceptually analogous to Duchamp’s elemental parallelism. Duchamp reduced the nude to its basic elemental lines and geometric shapes, and then generated the composition through manipulation of these basic figures. Duchamp painted multiple representations of the object’s successive movements through the repetition of twenty elemental lines, in other words through inexact repetition. The subject matter does not change, and the viewer remains stationary. Like Varèse, he avoided Futurism’s continuous trajectory and focused the attention of the viewer on the figure’s consecutive actions.
Duchamp also played with perspectives in *Tu m*’ and *Rotary Glass Plates*. Because he incorporated three-dimensional objects extending out from the canvas in *Tu m*’, the viewers’ perception is determined by their location in respect to the canvas (Figures 2 and 3). Duchamp liberated the viewers from a fixed presentation by allowing them to create multiple perspectives through their own movements. Unlike Cubism’s conceptual movement, *Tu m*’ creates multiple perspectives through actual movement. In *Rotary Glass Plates*, Duchamp added another motion variable to perception, where the work of art may be at rest or in motion (Figures 4 and 5). Therefore, the viewers’ movements and the physical state of the *Rotary Glass Plates* create different perspectives. Through the inclusion of three-dimensional objects and movement, Duchamp encouraged viewers to look at his works of art in an untraditional way.

**Simultaneity—Constant Flux**

Bergson’s belief in the unpredictable progress or constant flux of nature and the simultaneity of events taking place at any one moment in time influenced the Cubists and the Futurists. Both movements found justification in his theories for their deformations of objects and their dismissal of traditional perspective. In *Intégrales*, Varèse used multiple perspectives or deformations of his sound-masses simultaneously. As previously discussed, in the first five measures of this piece, all three sound-masses are related; the woodwind and low brass sound-masses are variations on the extended motive first heard at measure ten in the C trumpet (Example 9). Throughout the first thirty-two measures, all three sound-masses overlap at unpredictable times. In the visual domain, Duchamp overlapped the successive movements of his *Nude*. 
Varèse and Duchamp were interested in Bergson’s concept of constant flux as well. *Intégrales* achieves constant variation through the manipulation of dynamics and rhythm. Because the vertical and harmonic structures avoid traditional melodic and harmonic directional expectations, interest is maintained through unexpected rhythmic and dynamic events. Long note values within one sound-mass are usually interrupted by quicker rhythms played simultaneously by different sound-masses, thereby inserting rhythmic momentum (Example 10). When Varèse used repeated notes, quick dynamic changes hold the listener’s attention.

Constant flux is also a feature of the sound-mass counterpoint found in *Intégrales*. The texture alternates between the simple and easily perceived to that of extreme complexity. At times a solo instrument is the only activity. For instance, at measure 191 a solitary oboe soars out of the previously dense texture (Example 3). Alternatively, at measure 122, the vertical content is thicker, and the texture is briefly mono-rhythmic (Example 8). Some homophony is apparent within *Intégrales*, but most of its texture is dominated by the constant interplay of sound-masses, Varèse’s polyphony. This continuous and irregular rhythmic collision and repulsion of musical objects creates the form of *Intégrales*.

Besides the obvious examples of constant flux found within Duchamp’s *Nude, Tu m’* may be read as fluctuating dimensional perspectives. Duchamp juxtaposed real objects, in other words three-dimensional figures, against shadows of his readymades, which he considered to be two-dimensional shadows of three-dimensional figures. Further evidence of constant flux is found when shadows of Duchamp’s past works of art penetrate into his present works. Tracings of his 3 *Standard Stoppages* and shadows from previous readymades are intermingled with new ideas in *Tu m’*. Thus Duchamp acknowledged that his artistic endeavor involved a culmination of his experiences. Duchamp’s *Fountain* pushes constant flux into the viewer’s conception by
challenging the public’s definition of art. Finally, the viewer’s perception of the *Rotary Glass Plates* is in continual flux through light refraction as well as viewer placement.

**The Fourth Dimension**

Both artists attempted to illicit the fourth dimension in their works of art. Varèse declared space to be the fourth dimension in music, but Duchamp’s definition was more complicated. Many visual artists thought that this dimension reigned in time, and they tried to represent the temporal domain within their works of art. Depicting time seems to have been one of Duchamp’s methods for portraying the fourth dimension, but so too was $n$-dimensional geometry. In *Nude, No. 2*, the representation of temporal movement is obvious, but the artist’s reference to $n$-dimensional geometry is more difficult to discern. As outlined earlier, Duchamp reduced the figure to its elemental lines; these lines represent the edge of a figure that crosses out of our perception and into another dimension.

When we compare Duchamp’s belief that lines have volume beyond our sight with Varèse’s idea that musical objects are invisible geometric figures moving in space, we find both artists stretching the dimensional limits of their medium. Also, just as Duchamp used shadows to represent a different dimensional plane, Varèse’s dynamic spectrum moves objects to different spatial planes. At measure 178, the score is marked: (1) *Clarinettes = sonorité creuse (légèrement dominantes)* (2) *cor, Trptt. En ut, 3me Trombone, Très equilibrés— Presque au 2me plan, Ptes. Fls., Hb.— Trptte en ré a l’arrière plan* (Example 11).^{1}

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^{1} Varèse, *Intègrales*, 36.
Example 11. Varèse, *Intégrales*, mm. 177–82
Varèse indicated that the clarinets should lightly dominate by appearing in the foreground, the piccolos and oboe are on the second plane or middle-ground, and the D trumpet is in the background. The D trumpet player is given a further indication to play quasi eco. In other words, the sound is reflecting back off of something, perhaps a “shadow” from the fourth dimension.

In *Tu m’*, Duchamp has toyed with our dimensional perspective. By painting a rip in the canvas and attaching safety pins, he created the illusion of entry into an unknown dimension, moving us beyond our perception of reality. Duchamp’s trompe-l’œil is analogous to Varèse’s manipulation of dynamics, which create the illusion of spatial movement. Finally, in the *Rotary Glass Plates*, Duchamp combined real movement, actual three-dimensional planes of glass, and concentric circles to reach the fourth-dimension, thereby reminding us that the circle was a form of dimensional collapse for Duchamp. Although Varèse spoke of the fourth dimension as sounds projecting into space, his techniques of rotation and equidistant projections from a central axis are reminiscent of the circular functions within Duchamp’s dimensional collapse (Examples 1 and 7). Duchamp used the term isomorphous when describing dimensional collapse, and this term refers to the process of crystallization. Interestingly, Varèse described his compositional process as crystallization.

### Non-Euclidean Geometry

Non-Euclidean lines are represented in *Tu m*’ by the tracings from the *3 Standard Stoppages*, one of Duchamp’s earlier works. The artist drew these lines onto the canvas, and then he used “the meter diminished” to determine some of the shadow sizes of the readymades.
Besides drawing curved lines, Duchamp drew overlapping circles, again as a symbol of dimensional collapse.

Varèse was interested in the curved space of non-Euclidean geometry; inspired by Helmholtz’s experiments with sirens, Varèse attempted to create parabolic and hyperbolic curves of sound. Although *Intégrales* does not include a siren, the percussion requirements do include a “lion’s roar” capable of performing a continuous trajectory of sound. Further evidence of curved sound is found in Varèse’s glissandi and pitch-bending requirements.

**Non-Traditional Functions**

Most of the controversy surrounding these two artists stemmed from their complete rejection of traditional functions for their compositional elements. Varèse composed using static note groupings instead of easily identified melodies. Duchamp composed with lines and geometric shapes instead of drawing a realistic representation of the figure. He went even further when he signed an industrially manufactured item and presented it as his work of art. Both men were challenging pre-conceived notions of their art.

Within the canon of Western music, both melody and harmony are usually the most intuitive elements, analogous to emotion. Composers of the Classical period set up expectations for melodic and harmonic progress, and those of the Romantic period pushed these boundaries to their limits. Varèse kept the freedom of progress demonstrated by the Romantics, but he substituted sound-masses for melody and harmony. Identifying melodic material within *Intégrales* is difficult, and functional harmonies are noticeably absent, making any prediction of melodic or harmonic progress futile. Color/timbre and register/range have also become less
intuitive and more structured, because they define the various sound masses. Dynamics, which
once served to support and highlight melodic material, have also become intellectualized.

This change of function and lack of reliance on conditioned intuition, is evidenced in
Duchamp’s Tu m’. Painters usually select colors intuitively or based on color correspondence,
but within this painting, Duchamp included the representation of a set of color samples from a
hardware store. Color was disciplined and intuition dismissed. In addition, other people paint
certain parts of Tu m’. A sign-painting artisan instead of an artist is asked to execute the pointing
hand. The noble and respected medium of painting has been reduced to a craft. The conception
of the work of art is more important than the painter’s technical skill for reproducing images.

Both Duchamp and Varèse were labeled iconoclasts because they broke away from
reliance on the traditional techniques of their respective media. Western music’s typical melodic
and harmonic trajectories were rendered impotent, just as the Fountain no longer operated. The
listener’s and spectator’s role also changed, because they were expected to engage in the
intellectual experiment. What was once considered cacophony is now music, and what was
plumbing is now art.

**Dada—Primitivism—Machine Aesthetic**

Both Varèse and Duchamp were impressed by the technology of the New World, and
they found art in daily life. Plumbing, sirens, and beams of light were fodder for their artistic
endeavors. Varèse’s music, with its repetitive sound-masses, has a mechanized quality, and the
harsh sounds are reminiscent of the noises from busy streets and constructing sites. He equated
some of his sound manipulations to projected beams of un-reflected light. Varèse’s descriptions
of *Intégrales* made no reference to street sounds, but his initial description for *Amériques* revealed his interest in the sounds around him.

Duchamp’s works of art almost always pay homage to technology and the industrialized world. His *Nude, No. 2* shows the influence of Marey’s chronophotographs, and his magnum opus *The Bride Stripped Bare by Her Bachelors, Even [The Large Glass]* anthropomorphizes machines. *Fountain* turned everyday plumbing into art. Within *Tu m’*, the viewer finds a mass produced bolt seemingly attaching color patches to the canvas, and an everyday bottle-brush displayed as art. Duchamp consistently turned to the machine, or objects produced by those machines, for inspiration.

Along with the veneration of the machine, Dadaists held primitivism in high regard. It supported their rejection of trained and academic practices within the art world. Both Varèse and Duchamp purposefully avoided “isms,” searching for their own style. Duchamp went so far as to stop painting after *Tu m’*. Varèse included instruments from ‘primitive’ cultures. He also incorporated the use of twigs instead of regular drum sticks and employed a homemade instrument, the string drum.
CHAPTER 6

CONCLUSION

The real developments, the innovations, in art and life, whether in literature or painting, depend on the manner in which the elements of one medium are translated to the conditions of another. If an artist’s work is strikingly different from that of his predecessors or contemporaries, one may well look for the source of his originality to those interests which fall outside the proper sphere of his own medium.1

Varèse and Duchamp received some formal training in their respective genres but ultimately broke away from academic expectations. During their formative years, they assimilated the traditions of the great masters, but Varèse and Duchamp were leaders, not followers. Once the traditional creative processes were rejected, each man found his artistic inspiration and maturity outside of his medium. With their similar interests in mathematics, technology, and the fourth dimension, Varèse and Duchamp came of age at the perfect moment in history.

The early twentieth century was a time of technological advances and new scientific discoveries. It was a period when science was still accessible to the layperson, and things once believed to be fact were proven fallible. With the invention of the X-ray, people saw beyond their perceptual limits for the first time, and the unknown became visible. Non-Euclidean geometry challenged general theories about that which was beyond our perception, and discussions about the fourth dimension preoccupied many artists in the early twentieth century. Varèse and Duchamp knew and associated with the artistic groups where these discoveries and theories where being debated. However,

although they shared acquaintances in Paris and New York, it was within the Arensberg’s circle that Varèse and Duchamp came into their closest and most extended contact.

**Labels**

Both men briefly aligned with various avant-garde artistic groups, but neither would allow themselves to be labeled or categorized. Like the Futurists, Varèse and Duchamp were interested in movement and appreciated the modern machine-age, but they were not supporters of the war. Neither man wanted to destroy the music of the past; they respected their predecessor’s achievements. Although the Futurists created new musical instruments, their *bruïteurs* did not meet Varèse’s expectations. Instead of generating new sounds for a new age, the Futurists recreated sounds.

During their association with the Arensberg circle, Duchamp and Varèse took an active part in the Dada movement. While Duchamp was one of the main instigators of New York Dada, his talents and ideas went beyond the short-lived movement. Varèse was the only musician actively involved in New York Dada, but his participation seems to have been purely social and literary. Duchamp described the environment in a 1951 letter to Anthony Hill:

> Dear Mr. Hill:
> 
> I am very glad that the implications in your letter dispense me with explaining how difficult it is to give you some “view” of New York 1915–18 when Varèse, Picabia, Gleizes, Jean Crotti, Arthur Cravan, Man Ray and myself were the happy exiles.
> 
> Walter Conrad Arensberg and his wife were our daily hosts; nearly every evening we would meet at the Arensbergs! In fact I think that is where Varèse met Louise, his wife.
> 
> We had our iconoclastic fun without knowing that there was to be a word for it in Zurich, and certainly Varèse’s music was the right song to it.2

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2 Marcel Duchamp to Anthony Hill, 6 May 1951, collection Anthony Hill, London; quoted in Mattis, 139.
Although Duchamp stated that Varèse’s music was a perfect match with Dada, none of Varèse’s compositions date from this period. ³

Both artists were accused of attacking their respective mediums and were branded iconoclasts. Duchamp’s Fountain challenged the public to redefine art. Varèse was less purposeful in his quest, but his music caused a debate about the nature of music. Varèse swayed from accepted compositional practices, no longer relying on traditional approaches to melody and harmony, with the result that his music elicited angry responses from the audience. Many years later, Varèse would deny that he had ever been an iconoclast.

Points of Congruence

Both men threw out all preconceived ideas of what their art should be, leaving nothing sacred. With common interests in science and higher mathematics, they played with perspectives and simultaneity, trying to reach the invisible dimensions beyond the human realm. Changes in contemporary society made them search for the music and visual art that would resonate with the present, new art for new eyes and ears. Neither man wanted to recreate the sounds and symbols of society. Each sought a more intellectualized and less intuitive result, art made for the mind as well as the eyes and ears.

³ For an extensive summary of Varèse’s involvement with Dada, see Olivia Mattis, “Edgard Varèse and the Visual Arts.”
While Duchamp rationalized color, the most intuitive aspect in painting, and dismissed or changed the function or appearance of everyday objects, Varèse turned his music into a three-dimensional object moving in space. In *Intégrales* he removed the intuitive progress of melody and harmony and substituted blocks of static sounds changing at very slow harmonic speeds. Rapid dynamic changes and continuous rhythmic variety became responsible for the movement and direction within the music. He changed the functions and the hierarchy of the elements of music within *Intégrales*, thereby pushing the limits of his art.

In conclusion, the artistic climate in early twentieth-century Paris and New York was a fertile creative environment for Varèse and Duchamp. Both men bore witness to major changes or advances in science, technology, and art. Although they were associated with contemporary artistic movements, they often took the ideas gleaned from these groups and applied them to their own art in their own unique ways. Being innovators, not followers, each man provided a new direction for his medium. However, it is difficult to identify what influence they had on other artists due to their rejection of formulas and “isms.” As Bernard stated, “Varèse’s influence can’t be traced because it encourages diversity of technique,” and the same can be said about Duchamp. As for the influence upon one another, we know that both men created their magnum opus in the early twenties after having been in close contact through the Arensbergs. Therefore, we may not be able to pinpoint exactly how this association affected their art, but the relationships undoubtedly gave each artist the encouragement and permission to push his art beyond the accepted contemporary models.

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APPENDIX

ILLUSTRATIONS

Figure 1. Duchamp, *Nude Descending a Staircase, No. 2*, 1912, Oil on Canvas. Philadelphia Museum of Art; Louise and Walter Arensberg Collection, 1950.

Note: Reproduction, including downloading of Duchamp works is prohibited by copyright laws and international conventions without the express written permission of Artists Rights Society (ARS), New York.
Figure 2. Duchamp, *Tu m’*, 1918, Oil and Pencil on Canvas, with Bottle Brush, Three Safety Pins, and a Bolt. Yale University Art Gallery, Gift from the Estate of Katherine S. Dreier.

Figure 3. Duchamp, *Tu m’*, 1918, Oil and Pencil on Canvas, with Bottle Brush, Three Safety Pins, and a Bolt. Yale University Art Gallery, Gift from the Estate of Katherine S. Dreier.

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Figure 4. Duchamp, *Rotary Glass Plates (Precision Optics)*, 1920, Five Painted Glass Plates, Wood and Metal Braces, Turning on a Metal Axis, Electrically Operated. Yale University Art Gallery, Gift of the Collection Société Anonyme

Figure 5. Duchamp, *Rotary Glass Plates (Precision Optics)*, 1920, Five Painted Glass Plates, Wood and Metal Braces, Turning on a Metal Axis, Electrically Operated. Yale University Art Gallery, Gift of the Collection Société Anonyme

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