NEW METALLIC IDENTITIES:
THE STRUCTURE AND FUNCTION OF THE MACHINE IN EARLY TWENTIETH-CENTURY ART

by

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Abstract

During the first few decades of the twentieth century the appearance of the machine in European and North American works of art is well documented. The rise of a machine aesthetic existed alongside the exploration of new forms of pictorial language—both marked by a boisterous optimism. In much of the literature dealing with this subject, the assumption is made that the machine was an uncomplicated and celebratory aspect of "modern" art. This document seeks to question that assumption, illustrating that the presence of the machine in such movements as Futurism, Vorticism, and Dada, while often alluding to the utopian, also indicated a deeper ambivalence with respect to technology and its role in human creativity. Taking apart and examining some of the cogent themes associated with the machine and the visual repertoire of these movements, this thesis highlights the role of technology in the formation of artistic identity, both collective and individual. One of the most pertinent conclusions that can be drawn from this study is that the predominant role of the machine in early twentieth-century art was inextricably linked to human self-definition: mind, body, and soul.

Keywords: Dada, Futurism, Vorticism, Machine, Technology, Automaton, Dance, Body, Mysticism, Identity, Creative Indifference, Vortex, Simultaneity.

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Introduction

It is generally acknowledged that the machine was of central importance in early twentieth-century Western art production; its connection to modernity as well as to the development of novel pictorial languages and approaches has been commented on repeatedly in academic writing dealing with technology and art. An intense and thorough exploration of the machine in both the art and writing of that time is not possible in a project of this length. However, in the following three chapters, I will examine several crucial and related themes that I feel have been overlooked or inadequately addressed in the literature. Ultimately, I hope to provide further insight into the significance of the machine within Futurism, Vorticism and Dada.

The relentless and ubiquitous mechanical progress felt throughout the late nineteenth century renders the notion of living without machines unimaginable today. Yet one must imagine that at the turn of the century, the use of machines in everyday life was novel; the explosive growth of urban centers in tandem with changes in both the industrial and domestic spheres due to technology would have placed the machine at the forefront of any discussion of modernity. In addition, new interpretations of reality were being suggested in the sciences: the worlds of infrared and ultra-violet radiation, the existence of electrodes and ions, and the forces behind thermodynamics.[1] Scientific discoveries, though not always directly applicable to

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[1] Jerome Hamilton Buckley, The Triumph of Time: A Study of the Victorian Concepts of Time, History, Progress, and Decadence (Cambridge: The Belknap Press of Harvard University Press, 1966), 37.

technology in the case of the arts, still played a crucial role in altering societal constructs of reality—this in turn impacted upon the work of visual artists. New methods of locomotion altered notions of travel, speed, and space, and advances in communication technologies transformed human interaction. Telephones, telegraphs, and marked improvements in print technologies would have increased one's sense of connection while at the same, in the chaotic simultaneous experience of increasing visual and auditory simulation, these new methods of communication would have left one feeling fragmented.[2]

One of the most significant machines to develop and enhance human transport was the automobile; in its invocation of speed and a sense of accelerated perception, the automobile captured the interest of artists and writers alike. In F. T. Marinetti's 1909 "The Founding and Manifesto of Futurism," he typifies his car as a "snorting beast" and describes a car ride with friends in the following manner:

> The raging broom of madness swept us out of ourselves and drove us through streets as rough and deep as the beds of torrents. Here and there, sick lamplight through window glass taught us to distrust the deceitful mathematics of our perishing eyes.[3]

Marinetti's description of the automobile as exciting while at the same time threatening, serves to underline the new theme of human frailty in the face of emerging machine technologies.

An ongoing theme of this thesis reveals the pursuit of strength and vitality through an early twentieth-century machine aesthetic. Perceived changes in human potential within increasingly mechanized environments led to a deeper analysis of

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[2] Stephen Kern, The Culture of Time and Space: 1880 - 1918 (Cambridge: Harvard University Press, 1983), 113.

[3] F. T. Marinetti, "The Founding and Manifesto of Futurism 1909," Futurist Manifestos, ed. Umbro

technology with regard to the fate of humanity. The end result in many cases was the symbolic merging of man and machine, a programmatic vision within Futurism and Vorticism that would render man indestructible, and allow him to realize his full potential. In "Destruction of Syntax—Imagination without Strings—Words-in-freedom" of 1913, Marinetti predicted that the changes in human sensibilities, brought about through the developments within science and technological fields would ultimately result in "Man multiplied by the machine." Further, Marinetti predicted a "[n]ew mechanical sense, a fusion of instinct with the efficiency of motors and conquered forces."[4] In "Multiplied Man and the Reign of the Machine" he stated "we must prepare for the immanent, inevitable identification of man with motor, facilitating and perfecting a constant interchange of intuition, rhythm, instinct, and metallic discipline of which the majority are wholly ignorant..."[5]

Despite their theoretical differences, and the Vorticists' attempt to define themselves in contradistinction to Futurism, both movements shared an enthusiasm for the machine, and viewed the partial merging of man and machine as a groundbreaking leap into the modern. Utopianism aside, this thesis hopes to complicate this popular vision of Futurism and Vorticism. I will show how the celebratory tenor of both movements masked an underlying fear with regard to technology and the machine. In the final analysis, Futurism and Vorticism, while

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Apollonio, trans. Robert Brain, R.W. Flint, J.C. Higgitt, and Caroline Tisdall (New York: The Viking Press, 1970), 97.

[4] F. T. Marinetti, "Destruction of Syntax—Imagination without Strings—Words-in-freedom 1913," Futurist Manifestos, ed. Umbro Apollonio, trans. Robert Brain, R.W. Flint, J.C. Higgitt, and Caroline Tisdall (New York: The Viking Press, 1970), 97.

[5] F. T. Marinetti, "Multiplied Man and the Reign of the Machine1911-15," Marinetti: Selected Writings, ed. R.W. Flint, trans. R.W. Flint, and Arthur A. Coppotelli (New York: Farrar, Straus and Giroux, 1971), 91.

exploring mechanical themes in their work in a positive way, ultimately lend themselves to a more nuanced reading that allows for a certain amount of uncertainty in what has been commonly thought of as a simple endorsement of the machine in early twentieth-century art.

In contrast to a largely utopian imperative, Dada's merging of man and machine, mostly accomplished through collage techniques, reveals an astonishing awareness of this ambivalence with regard to technology. It is important to state that in many ways, Dada acts as a foil for Futurism and Vorticism in the make-up of this document. In the course of my research I came to the conclusion that Dada, while sharing crucial themes with Futurism and Vorticism, cannot be considered in the same straightforward manner that I attempt to deal with the aforementioned movements. Coming at a later time in history, and functioning on a level that supersedes simple analysis, Dada provides a crucial and flexible approach to cultural material dealing with the machine, and therefore must be analyzed in a more open-ended way.

At this point, it may be useful to discuss some methodological concerns. One of the weaknesses I found in the literature was the lack of interdisciplinarity in understanding the art world at that time. Although many writers emphasize the influence of one artist on another, or of one artist on a production by way of set designs and/or choreography (as in the case of dance), seldom do scholars address some of the fundamental reasons and/or themes behind the explosive increase in collaborative projects in the early twentieth-century art world. The artistic crossover

between design, dance, performance, poetry, music and the visual arts at this time demands a broader view.

By considering my material in terms of cultural themes and contexts rather than by a traditional art-historical tracing of cause and effect, I hope to provide a fuller picture of how the machine impacted on the creative output of early twentieth-century artists. As a result, one of the inevitable shortcomings of an interdisciplinary approach is that it may be too ambitiously holistic; I can only state that my goal at this juncture is not to be comprehensive or all-inclusive with my material. My main desire is to explore some of the cultural themes that emerge if one looks past rigid disciplinary boundaries.

By necessity, I limited myself to three art movements, but I could have easily expanded this work to include such movements as Russian Constructivism, Cubo-Futurism, and Purism. The reason behind the omission of these movements has much do with the themes I chose to pursue. Tying all the movements together in my thesis occurred mainly through the notion of identity; on some fundamental level, Vorticism, Futurism and Dada seemed to be primarily concerned with re-defining (or questioning) humanity in relation to technological aspects of modernity. I am not concluding that this theme is not present in the work of other individuals or movements in the early twentieth century, but if it is present, I do not feel it is central to their artistic program.

One individual who falls outside this framework is the artist, Fernand Léger. I mention Léger at several points through the various chapters, mainly because I consider his writing on art and the machine a crucial resource for understanding the

work of other contemporary artists at that time.[6] He stated that "[m]odern man lives more and more in a preponderantly geometric order...All mechanical and industrial human creation is subject to geometric forces."[7] In his semantic reliance on the machine and on an urban context, in his play between the ambiguous spaces of objective and non-objective art, and in his involvement with all levels of artistic activity at the start of this century, including dance, Léger provides an invaluable perspective on the artistic life of early twentieth-century individuals interested in the relationship between man and machine.

However, my intention is not to explore the work of Léger, only to use his writing occasionally as a way of examining the places where Vorticism, Futurism and Dada meet; notions of force, function and structure are ubiquitous throughout this early twentieth-century focus on the machine as an aesthetic and theoretical tool. Also, in his individual approach, he highlights the fact that movements are made up of individuals, and though I will often make generalizations regarding the various movements in this thesis, I do so cognizant of the fact that collectivities are essentially tentative at best, and are always subject to change.

Within the Vorticist aesthetic emerging themes include: the talented individual who transforms chaos into balance; nature as antithesis to a mechanical, corrective form of creation; an economy of aggression, where geometry is the principle force;

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[6] Léger's recollection of his visit to the 1912 Paris Air Show with Marcel Duchamp and Constantin Brancusi has often been cited; this demonstrates that he shared this penchant for modern mechanical forms with artists who all had very different approaches to the machine. See Christoph Asendorf, "The Propeller and the Avant-Garde: Léger, Duchamp, Brancusi," Léger, 1911-24: The Rhythm of Modern Life (Munich and New York: Prestel-Verlag, 1994), 203, as well as Dorothy Kosinski, "Léger, 1911-24: A Language for the Modern World," 17, from the same text.

[7] Fernand Léger "The Machine Aesthetic: The Manufactured Object, the Artisan, and the Artist" (1924), Functions of Painting, ed. Edward F. Fry, trans. Alexandra Anderson. (1965; New York:

and the witty application of humour as a polemical tool of rhetoric. In a similar vein, Futurism also utilizes aggression, art polemical rhetoric, and mechanical imagery to signal the arrival of a new machine-age culture, but there are significant and fundamental differences between the two movements. Even more complex, and occasionally arbitrary, are the relationships between the mechanical, the human, and the modern, within Dada.

Rather than attempt a straightforward survey and comparison between various groups for whom the machine aesthetic was of central importance, I will provide a thematic analysis of some of the more cogent motifs that emerge during this time. Often, intersections, and overlapping will occur. Where markers of a machine aesthetic intersect, the juxtaposition of different viewpoints may prove illuminating. Each group, though sharing cultural material with other artistic movements, must be examined through self-made internal structures: manifestos, self-reflexive criticism, and the work itself.

In Chapter One, I will present a broad overview of some of the larger concerns surrounding mechanization and its impact on early twentieth-century art. A curious ambivalence between a mystification of the machine, and a concern with the purely physical realm of sense and perception can be documented. Ultimately, I will argue that the "soul" of humanity was deeply affected by technology, and that this manifested itself in a mystical interest in all things mechanical.

In Chapter Two, I will address the co-existence of an emerging fascination amongst the avant-garde with dance and dance related themes, with an equally

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The Viking Press, 1973), 52.

passionate involvement with the machine. Where the two meet, crucial spaces are opened up for discourses surrounding the merging of the organic and the mechanical: a site where human corporeality merges with the seemingly reductive arena of pure function and form. Although the literature of the past has noted the impact of the visual arts on the dance world, the analysis has seldom gone in the other direction. I would argue that the repeated presence of the dancer within disparate art movements indicates the significance of the "body" in an analysis of the machine's import for early twentieth-century conceptions of technology.

Finally, in Chapter Three, I will attempt to examine the machine aesthetic in terms of human cognition; I will explore the importance of the human will as a structuring element for many artists at that time. Tensions between individualism and collectivity are played out in an intellectual battle for supremacy via the machine, and ultimately it is the "mind" of man that gives form to the machine.

1. New Technologies

Modernity, Flux and the Soulful Machine

At first glance, the work of early twentieth-century artists appears unboundedly optimistic with regard to contemporary technology and cultural change. Futurism embraced the machine, and was interested in everything brought about through changing technology; they exhibited a fascination with speed, altered human experience, cultural revolution, urban growth, and new art forms. Vorticism utilized a mechanical vocabulary, viewing the machine as a metaphor for increased human potential. Dada interactions with the machine are harder to define and often seem contradictory. By divesting the machine of its culturally defined meanings, it, more than any other movement, revealed more clearly the complicated and ambivalent relationship that Western culture shared with technology at the beginning of our century. In the following chapter I will show that in opposition to the common images and stereotypical interpretations found in the literature, the interrelations between the machine and Futurism, Vorticism, and Dada were extremely complicated. I will explore the ambivalence these movements exhibited with regard to technology, and examine how each movement utilized their artistic practice as a means of meeting and actively engaging with their changing technological milieus.

The machine and notions of progress are inextricably intertwined concepts in the history of modernism. There were perceived changes in collective and individual experience within urban environments, where the impact of modernisation had forever altered the relationship between humans and their newly mechanised surroundings. The trajectory of human culture was scrutinized with increasing intensity. In fact, the beginning of the twentieth century was marked by a rising interest in time itself, resulting in theoretical explorations of societal development and

possible futures. The 'Future,' almost as a philosophical construct with all the surrounding theories—social, historical, and scientific—became a popular area for analysis both in lay and academic circles. Science fiction as a literary genre was born at this time, and grew astronomically in popularity; the wealth of writing about the future was as diverse as it was predictive. Both positive, negative, as well as ambivalent future realities were proposed. Dystopias, containing "destructive volcanos, killer diseases, and maniacal rulers" were predicted alongside more utopian alternatives where safe and clean modern cities allowed for "less drudgery" and "cheaper goods."[1]

The rise of Social Darwinism, with its emphasis on progress, produced theories of societal degeneration and decay. Yet these theories existed alongside more utopian visions of the future. A distinction emerges in the critical literature between positive and negative views of technology; the traditional artistic approach to technology was often cast in utopian terms, while social commentary and theories in the physical and social sciences often occupied a place of negativity, viewing the machine primarily in malevolent terms.

Futurist rhetoric displayed this utopian vision most clearly. Even negative societal creations such as war and political unrest were viewed in positive terms, as necessary manifestations of cultural revolution, and as the opportunity to erect an improved culture out of the destruction of an older one.[2] In large part, Vorticism

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[1] Stephen Kern, The Culture of Time and Space: 1880 - 1918 (Cambridge: Harvard University Press, 1983), 98.

[2] Friedrich Nietzsche's promotion of a type of heroism based on individualism involved the destruction of old regimes in order to facilitate the engendering of new cultural structures. His writing and ideas were particularly influential for the Vorticists who, like Nietzsche, believed that

shared this optimism, and infused the machine into their own blend of aggressive nationalism. In the first Vorticist publication, Blast No. 1, Wyndham Lewis's section on 'blasts' and 'blesses' reveals England as the rightful home of emerging technologies: "BLESS ENGLAND, Industrial Island machine, pyramidal workshop, its apex at Shetland, discharging itself on the sea."[3]

For the Futurists, technology and urbanization were seen to co-exist in the potent spaces of future cities. In Antonio Sant' Elia's manifesto "Futurist Architecture" of July 1914, his utopian vision of a modern city incorporated themes of efficiency, control, management, and collective functioning in a way that invoked the machine as model.[4] His 1914 drawing The New City: Terraced Building Over Two-leveled Street (Fig. 1) is an exemplary vision of his prophetic designs for a new kind of urban structure. Here, he outlined the principles of an ideal modern building, one that would be like "a gigantic machine" and consist of such materials as iron, cement, and glass, all without ornament. Its machine-like appearance would finally render it "brutish in its mechanical simplicity."[5] Less literal, and more abstract, the use of a mechanical vocabulary in Vorticist constructions of the city also reflect this utopian optimism.

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great men attained their status through struggle and strife in an effort to harnass creative forces. See Leslie Paul Thiele, Friedrich Nietzsche and the Politics of the Soul: A Study of Heroic Individualism (Princeton: Princeton University Press, 1990), 17.

[3] Wyndham Lewis, Blast 1. (1914; reprint, Santa Rosa: Black Sparrow Press, 1989), 23-24.

[4] Antonio Sant' Elia, "Manifesto of Futurist Architecture 1914," Futurist Manifestos, ed. Umbro Apollonio, trans. Robert Brain, R.W. Flint, J.C. Higgitt, and Caroline Tisdall (New York: The Viking Press, 1970), 107.

[5] Judy Davies, "Mechanical Millenium: Sant'Elia and the Poetry of Futurism," Unreal City: Urban Experience in Modern European Literature and Art, ed. Edward Timms and David Kelley (Manchester: Manchester University Press, 1985), 66.

Even Dada, which tended to approach technology with either a playful irreverence or a skeptical air of irony, acknowledged the positive potential of machine imagery; this is evident in the critical and/or constructive works produced by some of its adherents. For Dada, cultural re-building was possible based on the premise that cultures and cultural phenomena are fluid and unfixed; this necessarily resulted in the assumption that if culture was a constructed mechanism, then it could be re-constructed and/or altered at will.[6] It can also be argued that the Dadaists aspired to the notion of a newly emerging epoch. Within more utopian views of Dada production, Dada artists felt that the essence of this new era might be experienced by those who were given the proper tools of comprehension—this included new ways of seeing the world and new ways of integrating mechanistic realities into everyday living.[7]

In much of the literature at the turn of the century, a moribund fascination with modernity and decay is revealed; industrial change was viewed as a harbinger of decadence and degeneration, and societal decline and technology were inextricably linked. At the end of the nineteenth century John Ruskin had typified the modern city as filthy and ruinous. For him, industrial progress and urban development became associated with social decadence. Thus, moral cleansing became the necessary antidote to what seemed an overriding tendency towards decay and societal disintegration. Many others shared this sentiment, describing scenes of urban squalor,

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[6] Stephen C Foster, "Dada Criticism, Anti-Criticism and A Criticism," Dada Spectrum: The Dialectics of Revolt, ed. Stepen C. Foster and Rudolf E Kuenzli (Madison & Iowa City: Coda Press, Inc. & the University of Iowa, 1979) 39-40.

[7] Timothy Benson, "Mysticism, Materialism, and the Machine in Berlin Dada," Art Journal 46.1 (Spring 1987): 47.

where "smoke-filled valleys and polluted streams were outward marks of an inner malady."[8]

In 1910, Henry Adams noticed a tendency toward social decline, stating "every reader of the French and German newspapers knows that not a day passes without producing some uneasy discussion of supposed social decrepitude; falling off of the birthrate; decline of rural population; lowering of army standards; multiplication of suicides...signs of nervous exhaustion, of enfeebled vitality..."[9] Degeneration became a loaded term, where mechanistic change was but one of many associative factors leading to social decline. Modern city living was often viewed as symptomatic of a troubled inner core within the structures of societal deformation. Social Darwinist theories explained much of this by way of societal devolution: cycles of decadence and renewal placed nineteenth-century life on the edge of a great chasm.[10]

The social and physical sciences seemed to concur with this dark and dreary prognostic of cultural decline. In William Thompson Kelvin's essay entitled "On a Universal Tendency in Nature to the Dissipation of Mechanical Energy" the second law of thermodynamics is discussed. Kelvin establishes that there is a fixed amount

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[8] Jerome Hamilton Buckley, The Triumph of Time: A Study of the Victorian Concepts of Time, History, Progress, and Decadence (Cambridge: The Belknap Press of Harvard University Press, 1966), 60-1.

[9] Henry Adams, The Degradation of the Democratic Dogma (1910; New York: MacMillan, 1920), 186-87.

[10] These theories tended to focus on the procession of life as an evolutionary struggle through biological destruction. The blood of the "purer" races was viewed as succumbing to disease through the accumulation of pollutants continuously developing within mechanistic societies. Diabetes, tuberculosis, syphilis and the abuse of alcohol, were all symptomatic of a spiritual collapse brought about through urban living; the impersonal nature of cities was viewed as the perfect breeding ground for crime, insanity, and even suicide. For a concise discussion of these theories, see Kern,

of energy in the universe, arguing that through the process of entropy potential energy is constantly, and irreversibly, being lost.[11] His prediction that eventually the universe would experience "thermal death" figured in many theories of cultural degeneration that targeted the city as a place of futility, excess and waste.[12] Interestingly, and most significantly perhaps, Kelvin's results arose from the study of mechanical energy.

Alluding to the fear that lay behind these theories, Oswald Spengler, in his 1918 text The Decline of the West, asserted that humans would inevitably become the slaves of their own technological creations. His vision of the machine, speaking from an early twentieth-century standpoint, aptly summarizes the negativity of the predominant view of mechanization at that time:

> ....As the horse-powers run to millions and milliards, the numbers of population increase and increase, on a scale that no other Culture ever thought possible. This growth is a *product of the machine*, which insists on being used and directed, and to that end centuples the powers of each individual... The intoxicated soul wills to fly above Space and Time. An ineffable longing tempts him to indefinable horizons...Never save here has a microcosm felt itself superior to its macrocosm, but here the little life-units have by the sheer force of their intellect mastered inert matter. It is a triumph, so far as we can see, unparalleled. Only this our Culture has achieved it, and perhaps only for a few centuries....But for that very reason Faustian man has become the *slave of his creation*.[13]

It would appear that artistic responses to the machine at the beginning of the twentieth century are by and large positive and productive, in contrast with more pessimistic views of technology as suggested in much of the literature at that time. I

105, and Donald E. Gordon, Expressionism: Art and Idea (New Haven: Yale University Press, 1987), 5.

[11] Kern, 104.

[12] In the social sciences, the negative impact of urban experience on the psyche was given its own nominal disorder. Published in *American Nervousness* in 1881, George M. Beard introduced the diagnostic category of neurasthenia (nervous exhaustion) which set the tone for subsequent theories dealing with the "increasing tempo of life and its nefarious consequences." Kern, 124-25.

[13] Oswald Spengler, The Decline of the West, ed. Helmut Werner, English Abridged ed. Arthur Helps. Trans. Charles Francis Atkinson. (1918; Oxford: Oxford University Press, 1991), 410-12.

would suggest that this division between social theory and artistic practice, while convenient, is too simplistic. Rather, I would argue that the machine became an ambivalent symbol of the future; closer examination of some of the imagery and theoretical underpinnings of Futurism, Vorticism and Dada will reveal the complexity inherent in their artistic responses to technology.

A curious source of support for this assertion comes from the newly emerging realm of science fiction; in many ways it can be argued that science fiction provided an outlet for the fears, anxieties, and hopes of western culture with regard to the machine. The work of H.G. Wells provides an intriguing and seminal analysis of technology, one that attempts to ascertain its impact on humanity in the twentieth century.[14] His importance as an author and cultural critic lies in the fact that his writing is predictive of both utopian and dystopian futures, displaying both the idea of 'future as progress' as well as 'future as nightmare.' Perhaps most significantly, his complex vision of technology echoes the type of ambivalence towards the machine that can be seen in the visual arts.

Wells's dystopic prophecies warned of a culture that might lose control through the mismanagement of technology. His 1895 novel The Time Machine reveals a dystopia of the future where theories of degeneration and societal decay are reified. In a nightmare vision, his writing delineates a world where technology, social

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[14] Many cultural myths surrounding the machine were based on the works of H.G. Wells. In 1945, George Orwell, in assessing Wells's significance, stated that it was doubtful "anyone who was writing books between 1900 and 1920, at any rate in the English language, influenced the young as much." He went on to claim that "The minds of all of us, and therefore the physical world, would be perceptibly different if Wells had never existed." See George Orwell, "Wells, Hitler and the World State," Critical Essays (1946; London: Martin Secker & Warburg, 1954), 97.

decadence, and evolutionary struggle have resulted in the downfall of man; a prophetic allusion to thermal death provides the final death knell.[15]

While Wells's 'time machine' symbolizes a form of technology that can envision its own demise, it in itself is a mechanistic devise that enhances human understanding through forewarning and understanding; in cautioning against a bleak future through the mismanagement of technology, Wells is making an effort to suggest alternatives. In other places in his writing, he predicted many advances of technology beneficial to the development of both human freedom and societal improvement. He even went so far as to predict that because of developing facilities in locomotion and communication, social unity would result in the "establishment of one world-state at peace within itself."[16] It becomes clear that for Wells, technology was not a fearful condition of the future; it was the use and/or misuse of scientific and mechanical knowledge that was of concern.[17] Interestingly, the confluence of mechanical invention, intellectual knowledge, and visions of human culture in the future becomes an important area for many artists of the early twentieth century, particularly with the Vorticists, and somewhat ironically in the case of Dada.

In addition, a type of mysticism associated with the machine also bespeaks a level of ambivalence, for though Henry Adams in his article "The Dynamo and the

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[15] Mark R Hillegas, The Future as Nightmare: H. G. Wells and the Anti-utopians (New York: Oxford University Press, 1967) 33.

[16] H.G. Wells, Anticipations of the Reaction of Mechanical and Scientific Progress upon Human Life and Thought (London: Chapman and Hall, 1904), 94.

[17] Many of Wells's ideas and predictions were a reactive response against a decaying Victorian present; this same concern was prevalent in much of the artistic production at the beginning of this century, reflected in the rhetorical proclamations of manifesto writing. The rejection of a decaying past was particularly strong with Futurism where unpleasant tragedies such as war, although enhanced by technological change, were seen as opportunities to abolish the past, and embrace a better future.

Virgin" seems to encapsulate a certain sense of menace and fear associated with technology, his final view of the machine approaches worship, or at least leaves purely negative reactions to the machine open for debate. Inherent in his reaction to the machine is fear—fear of the future, fear of loss of tradition, of established ways of knowing and understanding the world. However, he also acknowledges that the passing of a certain kind of comfortable historicism may be necessary, and that the machine, with its unfathomable potential may open up the world to new realms. His conflation of the forces of the dynamo with the forces of divinity and the Marian cult indicates the magnitude of this shift.[18]

This cultural ambivalence towards the machine is perhaps best understood by assessing the impact of modernity through an analysis of "experience." The relationship between changing technologies and changing conceptions of the physical world at the turn of the century resulted in a questioning of all established points of reference, and in many ways machines made it possible to alter the very fabric of perception itself. The solidity of objects, and the perception of intelligible phenomena existing at a given moment, merge, such that concrete and abstract points of reference become indissociable.[19]

Futurism, Vorticism, and Dada all explored enthusiastically the merging of new mechanistic forms with human cognition. While Futurism largely concentrated

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[18] Henry Adams, "The Dynamo and the Virgin," 1900, Changing Attitudes Towards American Technology, ed. Thomas Parke Hughes (New York: Harper and Row, 1975).

[19] What can be stated unequivocally of all early twentieth-century paradigms of the 'modern' is that human experience was central. The relationship between man and machine was not simply one of utility or pragmatism, but went much deeper, to the experiential level of being and identity. The use of the term 'machine aesthetic' in subsequent literature of the period, suggests a shift of human consciousness, one predicated through the internalization of a radically altered environment. See

on an individual's sensory experience of an urban and technological milieu, Vorticism evaluated the conditions of modernity in an effort to intellectualize and define the consequences of English modernisation.[20] Dada explored themes of the machine in terms of experience as well, but in a much more open ended and fragmented way, never attempting to draw conclusions about how the machine should be understood. It can be argued that it was the Vorticists who were most explicit in their mapping out of the parameters of this changing sensory awareness of the world. This is particularly evident in the work of Edward Wadsworth, who was inspired by aerial photography. Interestingly, his work, which often resembles aerial views of the ground, is similar in some cases to the work of Kasimir Malevich; both men were affected by recent developments in engineering technology and architecture.[21] In fact, the perception and reception of the modern world was deeply affected by continuing developments in the field of photography alongside other aspects of mechanization.[22]

For the Futurists, industrial progress and the rise of technology could be experienced most fully in the urban environment. The 'City' as a site of celebration is a continuous and overarching leitmotif. In "The Founding and Manifesto of Futurism" of 1909, F.T. Marinetti described the city in glittering and impassioned

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Robert L Delevoy, Dimensions of the 20th Century 1900-1945, trans. Stuart Gilbert (Geneva: Skira, 1965), 134.

[20] David Peters Corbett, The Modernity of English Art 1914-30 (Manchester: Manchester University Press, 1997), 18.

[21] Paul Overy, "Vorticism," Concepts of Modern Art, ed. Tony Richardson and Nikos Stangos (New York: Harper & Row, 1974), 106.

[22] The camera was both a mechanical form in its own right, as well as a device which recorded the forms of modernity in physical settings. Steiglitz's use of the "quintessentially 'modern' machine" to record new urban structures opened up new subject matter in the photographic world, and served

terms: arsenals and shipyards "blaze" with "violent electric moons"; railway stations "devour smoke-plumed serpents"; factories hang from the clouds; bridges "stride the rivers like giant gymnasts, flashing in the sun with a glitter of knives"; adventurous steamers "sniff the horizon"; and deep-chested locomotives "paw the tracks like the hooves of enormous steel horses..."[23]

Speed, sensation, and the vehicles which best embody this force, became a central and often romantic focus for the Futurists. Marinetti typified speed as a formative weapon against the restrictions of time and space:

> Why should we look back, when what we want is to break down the mysterious doors of the impossible? Time and Space died yesterday. We already live in the absolute, because we have created eternal, omnipresent speed.[24]

Throughout the Futurist movement, depictions of the automobile became increasingly abstract, as the effort to convey the sensation of speed surpassed the mere shape of the vehicle which facilitated it. In Giacomo Balla's 1913 painting entitled Abstract Speed (Fig. 2) he looked to mechanical function as a catalyst for speed and enhanced sensation rather than alluding to the shape of the automobile itself; repetitious lines and disc-like forms obliquely refer to the forces associated with the automobile's ability to alter perceptions of space and distance.[25] In this way, abstraction eliminated the need for representational conceptions of the machine, giving way instead to more esoteric attempts to explore the sensory effects of machine age inventions.

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as a symbolic marker in the history of modernism. See Miles Orvell, After the Machine: Visual Arts and the Erasing of Cultural Boundaries (Jackson: University Press of Mississippi, 1995), 9.

[23] Caroline Tisdall, and Angelo Bozzolla, Futurism (New York: Oxford University Press, 1978), 57.

[24] F.T. Marinetti, "The Founding and Manifesto of Futurism 1909," in Apollonio, 22.

[25] Tisdall and Bozzolla, 68.

Famous for their forays into all realms of the visual and performative arts, the Futurists explored an auditory awareness of the machine as well. The sounds of the city were celebrated by Luigi Russolo who, in "The Art of Noises," asserted:

> For many years Beethoven and Wagner shook our nerves and hearts. Now we are satiated and WE FIND FAR MORE ENJOYMENT IN THE COMBINATION OF THE NOISES OF TRAMS, BACKFIRING MOTORS, CARRIAGES AND BAWLING CROWDS..."[26]

His *Intonarumori* (noise-organs) sought to recreate the excitement of modern life through sound, in such auditory pieces as The Awakening City and The Meeting of Aeroplanes and Motorcars of 1914. With these he wanted to foster a type of music fit for an emerging age of mechanical power and consciousness.[27] Related machine sounds, aggressive and war-like, were simulated by Marinetti during performances of his poetry where he would chatter, boom, and utter whirring noises in an attempt to imitate machine-guns, cannons, and aeroplane engines.[28]

The noises, scents, and visual spectacles of the 'city' all related back to the machine, and its impact of human sensibility. The shouting of crowds was accompanied by collective forces, groupings of city dwellers who maintain strength in numbers.[29] In 1909 Marinetti declared "We will sing of great crowds excited by work, by pleasure, and by riot; we will sing of the multicoloured, polyphonic tides of revolution in the modern capitals..."[30] In this way, crowds of boisterous humanity

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[26] Luigi Russolo, "The Art of Noises 1913," in Apollonio, 76.
[27] Norbert Lynton, "Futurism," Concepts of Modern Art, ed. Tony Richardson and Nikos Stangos (New York: Harper & Row, 1974), 102.
[28] Jacob Epstein, Epstein: An Autobiography (New York: Arno, 1975), 59.
[29] The political climate in Italy encouraged such social unities brought about by industrial and urban growth. Technology was viewed by the Socialists as a liberating force that might release the heroic worker from the historical hierarchies of "land, race, and class." Yet, the Nationalists had their stake in the machine as well, viewing technology as the one of the factors that might eliminate class struggle in favour of the larger struggle of nation against nation. See William R.Valerio, "The Futurist State of Mind," Art in America 76 (December 1988): 128.
[30] Marinetti, "The Founding and Manifesto of Futurism 1909," in Apollonio, 22.

merged with urban centers, setting the stage for such works as Russolo's Rebellion (1911-12; Fig. 3) where a collision of two opposing elements provides a metaphor for social and political change. Futurist lines of force make up a revolutionary element against the forces of inertia and tradition.[31]

The Futurists' interest in the psychological states brought about through the chaotic and multi-layered experience of the city is explored repeatedly, and it is through an examination of this facet of their work that an ambivalence toward technology can be detected. In Umberto Boccioni's The Forces of the Street (1911; Fig. 4), techniques depicting the interpenetration of objects and the spatial disruption of forms through the use of 'Roentgen rays' (X-rays), recall elements from the Futurists' "Technical Manifesto." Simultaneity became the catch phrase to describe this layered and multifaceted experience of modern life, and in Forces of the Street, space, pavement, rain, and the glare of electric lights all merge and seem to coagulate in a chaotic illustration of the city's underlying fragmentation. Ultimately, this scene reflects an experience akin to a nightmare—one brought on by the overwhelming stimuli of the modern city.[32]

In the work of the Futurists a darker side to modernism is alluded to along with the excitement of technological change; in some instances, their work seems to fall back into a comforting past. Boccioni's painting The City Rises (1910; Fig. 5) presents the best example of this type. Originally named "Giants and Pygmies," one of the central themes of the work revolves around the notion of struggle and supremacy through a Darwinian battle. Ironically, the symbol of this strength, found

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[31] Tisdall and Bozzolla, 57.

in the giant red steed in the foreground of the picture, is neither futuristic nor mechanical.[33] Instead, the horse must be viewed as an anachronistic symbol of physical strength and industrialized labour.[34] Could this indicate a certain amount of discomfort with mechanistic paradigms of labour and progress? The position in the painting of the human workers supports this assertion, for Boccioni's labourers are more like cogs in a larger mechanism rather than heroic figures.[35] Perhaps this ambivalence towards technology apparent in this image reflects the battle between the comfortable presence of past imagery and experience, and the wrenching necessity of initiation into the modern.

In another set of paintings by Boccioni, a triptych entitled States of Mind: Those Who Go; Those Who Stay; The Farewells (1911; Fig. 6), the machine is a conflicted symbol of new mechanized realities—a subsumed current that makes itself felt indirectly through the emotional content of the picture. Despite imagery indicating the thematic presence of the machine and related technologies, the central zeitgeist is one of emotional and psychological separation. In one of the three paintings, The Farewells, a locomotive can be seen from the side as well as face on, with its stencilled number prominent. Similar to the role of the Eiffel Tower in the work of Robert Delaunay, machine elements such as the locomotive in Boccioni's

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[32] Ibid, 42.
[33] In fact, it has been suggested that the red horse is a metaphor for the ancient myth of Pegasus, who was the "traditional symbol of creativity and the keeper of Zeus's thunderbolts." This steed is "neither fair nor completely benevolent" and the strong outlast the weak. See Valerio, 128.
[34] Tisdall and Bozzolla, 41.
[35] Valerio, 129.

work become powerful icons that act as a focus for both human frailty and/or strength in the face of technological change.[36]

Dada, emerging slightly later than Futurism and Vorticism, had the benefit of watching such cultural icons as the locomotive and the Eiffel tower develop and gain notoriety as fixed signifiers of technology and progress. Rather than readily accept these signifiers as cultural givens, Dada seemed to understand the complexity and often arbitrary nature of such symbols. Dickran Tashjian, in an article entitled "Henry Adams and Marcel Duchamp: Liminal Views of the Dynamo and the Virgin," asserts that both Adams and Duchamp investigated the perplexing nature of technology in such a way as to acknowledge and perhaps even celebrate the fluid and changing nature of the machine's cultural status. Both endeavored to engage with the experience of the machine; human relations were cast in mechanistic terms, and ultimately both display a sense of frustration in seeking resolution or a sense of fixed meaning.[37]

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[36] Tisdall and Bozzolla, 44; Valerio, 129. There is an allusion to Delaunay's Orphism, evident in the disc shaped clouds and iron pylon in *The Farwells*. Boccioni may have seen Delaunay's studio or an exhibition of his work during a visit to France, and like Delaunay, he seems to have had as a goal the portrayal of the elements of the modern city as powerful icons.

[37] Important in this equation is the concept of simultaneity—an apt expression for the chaotic and eternally shifting environment of the modern—and the notion of suspended meaning. Tashjian ties Adams and Duchamp together in terms of the exhibition of technology. For Adams, the Exposition of 1900 in Paris, and the Great Hall of Dynamos constituted a confusing space where the display of technology proved overwhelming, and ultimately unknowable. For Duchamp and his *Large Glass*, the mechanisms continually elude a sense of functionality, and the meaning of the work is not easily deciphered. For Tashjian, the important link between the work of Duchamp and the writing of Adams has to do with the perplexing epistemological questions they both evoke with regard to the machine. Citing Adams's text *The Education of Henry Adams* Tashjian concludes: "*The Education* raises provocative aesthetic and epistemological questions, just as *The Large Glass* is visually hermetic, yet open, pointing to Duchamp's working notes kept in a *Green Box*. This emphasis upon process is raised to another level of magnitude by the unfinished status of the work, a 'delay in glass' that forever eludes simple resolution." See Dickran Tashjian, "Henry Adams and Marcel Duchamp: Liminal Views of the Dynamo and the Virgin," Arts Magazine 51.9 (May 1977): 105.

By acknowledging the inherent difficulties in attempting to assign fixed meaning to the machine as a cultural signifier, Dada production managed to successfully locate the places wherein cultural meaning is both constructed and compromised. They took as their target sites where the contract between art and society breaks down, leading to confusion and disassociation; this partially explains the schism between societal theories of degeneration and decay due to technology and more utopian representations of a new machine age. The symbol of the machine itself becomes identified as a conundrum that is both a site for social criticism as well as a site for play and celebration. In this way, Dada responded to the ambivalent experience of cultural constructions of the machine.[38]

Where experience leads to identification, ambivalence arises as humankind and technology merge. The machine's true significance for Futurism lies in its inextricable link with human identity. All efforts to depict, explore, or illustrate the conditions of modern life within Futurism refer back to 'man' as the organizing element, and in the final analysis it is human experience which shapes the machine into a supporting structure for the drama of human relations and perception. The relationship can be viewed as reciprocal, resulting ultimately, at least for Marinetti, in a merging of man and machine.

The primary indicator of a certain anthropocentrism within the work of the Futurists is the way in which they imbue all mechanized form with a life force of its

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[38] The role of the critic often supplies what is needed, fills the space when gaps occur in the system. Dada takes as its task the "recovery and analysis" of this mechanism (Duchamp in particular), even to the point of frustrating or short-circuiting the process. It is the foiling of this process, the refusal to allow critical closure that clarifies or highlights the process itself. See Foster 33-34.

own. Marinetti, in "The Founding and Manifesto" describes his car as a snorting beast, and tells of how he and his friends "lay amorous hands on their torrid breasts." After his fictional accident, he says "They thought it was dead, my beautiful shark, but a caress from me was enough to revive it; and there it was, alive again, running on its powerful fins."[39] In "Multiplied Man and the Reign of the Machine" he outlines a new mechanical beauty:

> We... exalt love for the machine, that love we notice flaming on the cheeks of mechanics scorched and smeared with coal. Have you never seen a mechanic lovingly at work on the great powerful body of his locomotive? His is the minute, knowing tenderness of a lover caressing his adored woman.[40]

In this case, the adored woman is merely a car, but for the Futurists, the ability of the car to increase their speed and swiftness, to alter their powers of transport and mobility, renders it a loved object, that in a sense, becomes a symbiotic extension of their internal sensibilities. In opposition to the view of humans as victims of mechanisation, here the creative powers of humanity are given expression through the cultivation and care of the machine.

The machine's potential for altering and enhancing human experience forms a theoretical fulcrum out of which all attempts to understand the machine as a living thing must extend. In the Futurists' "Technical Manifesto" of 1910, written by Boccioni, Russolo, Balla, Carlo Carrà, and Gino Severini, the following statement is made:

> Who can still believe in the opacity of our bodies, since our sharpened and multiplied sensitiveness has already penetrated the obscure manifestations of the medium? Why

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[39] Marinetti, "The Founding and Manifesto of Futurism 1909," in Apollonio, 20-1.
[40] F.T. Marinetti, Marinetti: Selected Writings, ed. R.W Flint, trans. R.W. Flint, and Arthur A. Coppotelli (New York: Farrar, Straus and Giroux, 1971), 90.

> should we forget in our creations the doubled power of our sight, capable of giving results analogous to those of the X-rays?"[41]

Enhanced perception through mechanical intervention necessarily alters the terrain of human identity itself. Marinetti, in "Destruction of Syntax—Imagination without Strings—Words-in-Freedom" of 1913 concludes that "Futurism is grounded in the complete renewal of human sensibility brought about by the great discoveries of science."[42] Drawing the analogy further, Bruno Corradini and Emilio Settimelli in their 1914 manifesto "Weights, Measures and Prices of Artistic Genius—Futurist Manifesto" made the claim that there is "no difference between a human brain and a machine...A human brain is a much more complicated machine."[43]

At first it appears that there is a contradiction inherent in many Futurist writings between images of a dehumanized mechanical man who is entirely active, and aspects of human psychology where sensory receptivity renders the individual passive. This paradox is perhaps best illustrated in the triptych States of Mind. In each of the panels, Those Who Go, Those Who Stay, and The Farewells, a drama of human emotion is being played out against the backdrop of technology. The locomotive becomes the central metaphor and happy conjoining of machine and man, signaling both the changing realities and contextual markers of modernity, while at the same time, illustrating the investment of human psychology into all realms of being. The anthropomorphism of the train is evident in the frontal image of the train,

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[41] Umberto Boccioni, Carlo Carrà, Luigi Russolo, Giacomo Balla, Gino Severini, "Futurist Painting: Technical Manifesto 1910," in Apollonio, 28.

[42] Marinetti, "Destruction of Syntax—Imagination without Strings—Words-in-Freedom 1913," in Apollonio, 96. Although it must be noted that technology and science are not interchangeable terms, for the Futurist there was a distinct connection between the two.

[43] Bruno Corradini and Emilio Settimelli, "Weights, Measures and Prices of Artistic Genius—Futurist Manifesto 1914," in Apollonio, 136.

where the two smokestacks resemble heads, each with an open mouth formed by the image of the train's whistles. The body of the train forms a torso and the red circular form of the warning signal could be said to signify a throbbing heart.[44] Albeit an ambivalent relationship, Boccioni tenuously balances active and passive responses to technology; it is only after 1913 that there can be felt a shift in Futurism, leading to a rejection of biologically based human experience and emotion.

During the later stages of Futurism, the merging of man and machine resulted in a terrifying purgation of human emotion and sentiment. Marinetti's vision of a fully mechanized man approached a level of brutality that, in the final analysis, represents a loathing for human frailty and weakness. Perhaps feelings of vulnerability in the face of technological change necessitated this valorization of the machine as a model for hardened human strength. With Vorticism, the machine was also viewed as a model for changing or altering human potential, but the relationship was the reverse of early Futurism—where in the early stages of Futurism the machine was anthropomorphised, in Vorticism, it is man who is mechanized. It is revealing that in the end, both Vorticism and Futurism came to view the injection of a mechanized element into the soul of humanity as necessary and inevitable; ultimately it signals a certain amount of anxiety with regard to the machine's role in the collective identity of early twentieth-century culture.

It is also crucial to recognize that much of the positive energy surrounding Vorticism's framing of the machine was complicated by an ambivalent attitude towards 'mechanized man' on the part of some of its members. Perhaps the best

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[44] Valerio, 132.

example is found in Jacob Epstein's The Rock Drill (1913-16; Fig. 7a, 7b). Although originally conceived in a utopian light, it was received by many as a frightening symbol of the machine's dehumanizing effects on humanity.[45] At first, during the creation of the first full-length version that included an actual pneumatic drill, it is probable that Epstein's enthusiasm for new mechanical forms prevented him from considering its more sinister implications. In retrospect, the history of the twentieth century lends The Rock Drill this powerful aura of lost hope, and in all fairness, it cannot be denied from a critical standpoint that the years following the creation of The Rock Drill have drastically altered our present understanding and reception of it.

Lewis had greeted the sculpture with enthusiasm, viewing it as an object that was an "irrational apparition" and declaring it as one of the best things Epstein had produced. He characterized the driller as a "nerve-like figure perched on the machinery, with its straining to one purpose" and concluded that it was "a vivid illustration of the greatest function of life."[46] What was meant by this comment is open to debate, but if one considers the fetal presence within the abdomen of the figure, along with the fact that the driller was hard at the task of altering an imaginary landscape, one can safely assume that he might have been referring to the construction of a new mechanized reality.

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[45] This reading of the work was reinforced by the form of a human fetus encased in the metallic torso of the driller. The rounded, organic shape of the small figure suggest that it has not yet taken on the mechanized appearance of its parent. Though apparently protecting the fetus with its arm, the driller's role in the creation of its progeny is questionable, and manifold interpretations exist surrounding the fetus's possible future. See, Richard Cork, "Rock Drill," Jacob Epstein: Sculpture and Drawings. London: W.S. Maney and Son in association with The Henry Moore Centre For the Study of Sculpture, 1989. See also Avigdor Poseq, W.G. "Zadkine's Poet: 'Ut poesis sculptura,'" Word & Image 10.1 (January-March 1994): 62.

[46] Cork, "Rock Drill," 170.

When Europe began to suffer the horrific consequences of warfare, Epstein's response to his own creation began to change. Within the arena of defense technologies, such inventions as the rapid-fire machine gun forever altered both the mechanical landscape, as well as public opinion regarding the implications of modernization. Epstein came to the conclusion that the drill should be removed from his sculpture due to its aggressive/destructive appearance. In the final version of the sculpture, exhibited at the London Group show in the summer of 1916, the driller's hand was amputated, along with the forearm and elbow. The hand on the opposite arm was also removed, and apart from aesthetic considerations that may have prompted this change, it served to highlight the figure's new frailty.[47] What had begun as an aggressive attempt to illustrate the birth of a new technologically enhanced humanity, had ended in an enfeebled sculpture that seemed prophetically morose in retrospect. In the final version, it is doubtful the "driller" could have defended its progeny against the darker forces of technology. Thus, The Rock Drill remains one of the most powerful images of this century expressing the complicated relationship between humanity and the machine.

To summarize, it becomes evident in many cases that self-censure, doubt, and struggle were not far behind a utopian naïveté. The complexities and life-altering consequences of the machine's implementation into all quarters of society at the turn of the century signaled the commencement of an ongoing discourse on the evils and/or beneficial effects of mechanization. Ideas of merging of man and machine, and subsequent fears regarding a loss of 'humanity' in overdeveloped urban areas, were

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[47] Ibid. 170-1

concerns that could be traced back to earlier phases of urbanization. At a social function in 1856, Karl Marx made a speech where he encapsulated societal fears surrounding the advent of mechanisation, and its rising role in the economic 'machine' of industrialism:

> In our days everything seems pregnant with its contrary; machinery gifted with the wonderful power of shortening and fructifying human labour, we behold starving and overworking it... At the same pace that mankind masters nature, man seems to become enslaved to other men or to his own infamy. Even the pure light of science seems unable to shine but on the dark background of ignorance. All our invention and progress seem to result in endowing material forces with intellectual life, and in stultifying human life into a material force. This antagonism between the productive powers and the social relations of our epoch is a fact, palpable, overwhelming, and not to be controverted.[48]

Similar to Wells's prognosis of culture, it seems Marx is implicating human nature as the determining factor behind the machine success and/or failure with regard to improving the quality of human existence. In the final analysis, the machine must reflect its creator: various facets of human nature, whether they be destructive or constructive, play themselves out in a system of cultural signs and symbols related to technology.

The present task remains to link artists' production with their experiences of modernity, particularly in terms of tracing the ambivalence inherent in their interactions with machine. The altered sensibility behind the desire to construct new modes of visual communication necessitates the delineation of early conceptions and understandings of the "modern." Fernand Léger detailed the reasons behind the breakdown in form utilized in the 'new painting' where the impact of technology changed the ways in which the artist interacted with the world:

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[48] An early view of industrialization and the art world is provided in Francis D Klingender, Art and the Industrial Revolution (London: Noel Carrington, 1947). This quote in Klingender (131), was

> If pictorial expression has changed, it is because modern life has necessitated it. The existence of modern creative people is much more intense and more complex than that of people in earlier centuries. The thing that is imagined is less fixed, the object exposes itself less than it did formerly. When one crosses a landscape by automobile or express train, it becomes fragmented; it loses in descriptive value but gains in synthetic value. The view through the door of the railroad car or the automobile windshield, in combination with the speed, has altered the habitual look of things. A modern man registers a hundred times more sensory impressions than an eighteenth-century artist; so much so that our language, for example, is full of diminutives and abbreviations.[49]

In the exuberance of the avant-garde's early utopian phase, there was an enthusiasm and optimism regarding the art of the future; Léger himself had pointed out that it was the artist of vision and insight who might create new visual languages that could authentically reflect a changing awareness of the modern world.[50]

Theories of reception play a key role in understanding various reactions to the machine on the part of early twentieth-century artists. Divergent and extreme reactions to the machine were noted by many, and subsequently, these reactions were themselves categorized into modes of experience in an effort to understand the nature of modern life. A rising interest in, and study of, the exact nature of human experience typified intellectual discourses surrounding modernity at the beginning of the twentieth century.[51]

In his 1902 lecture, "The Discovery of the Future," Wells identified two distinct modes of reception to changing technologies: one passive and reactive, based

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taken from a speech Marx made at a Banquet in 1856 in honour of the anniversary of the *People's Paper* which was edited by the Chartist leader Ernest Jones.

[49] Fernand Léger, "Contemporary Achievements in Painting" 1914, Functions of Painting trans. Alexandra Anderson, ed. Edward F. Fry (1965; reprint New York: The Viking Press, 1973), 11.

[50] Giovanni Cianci, "A Man at War: Lewis's Vital Geometries," Volcanic Heaven: Essays on Wyndham Lewis's Painting & Writing, Ed. Paul Edwards (Santa Rosa: Black Sparrow Press, 1996) 14.

[51] One of the most influential thinkers investigating human experience and cognition would have been Edmund Husserl, who throughout the early part of the twentieth century wrote and gave lectures on his theories of Phenomenology. In addition, the theories of experience and sensation put forth by Henri Bergson were given primary importance in the writings and theories of many artists at this time as well.

on precedents in the past, and one constructive and organizing, acting on a possible future. In the first, the future was regarded as a "sort of black nonexistence upon which the advancing present will presently write events." In the second, the world was viewed as a great workshop, where "the present is no more than material for the future, for the thing that is yet destined to be."[52] This framework for understanding human perception was echoed by Eugène Minkowski's never published work "How We Live the Future (and Not What We Know of It)," of 1918. In his theory of *activity* and *expectation*, the active response to technology was based on the notion of forward movement—an interaction with the future allowing for a certain amount of control. With *expectation*, this relationship was felt as one of retreat, where events and forces of the future were viewed as overwhelming and threatening. Contrary to Wells's perspective, Minkowski asserted that the two modes could exist simultaneously in all individuals, although not always in balanced portions.[53]

Vorticism openly established itself in an active position, and members often devalued Futurism as nothing more than a passive response to the conditions of modernity. In Blast No. 1, Ezra Pound writes:

> You may think of man as that toward which perception moves. You may think of him as the TOY or circumstance, as the plastic substance RECEIVING impressions. OR you may think of him as DIRECTING a certain fluid force against circumstance, as CONCEIVING instead of merely observing and reflecting.[54]

In part this was a veiled attack on Futurism; the Vorticists felt that Futurism was continually lost and powerless in the maelstrom of modern flux and dynamism. In truth, however, and particularly during the later stages of the movement, Futurism's

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[52] Hillegas, 14.
[53] Kern, 89-90.

approach to changing technology and modern life was active and they aggressively supported visions of a new mechanical future for humankind. Even at the beginning with the "Founding and Manifesto," Marinetti had aggression in mind when he planned the movement's artistic agenda:

> Except in struggle, there is no more beauty. No work without an aggressive character can be a masterpiece. Poetry must be conceived as a violent attack on unknown forces, to reduce and prostrate them before man.[55]

With this in mind, it is crucial to point out that both Futurism and Vorticism placed themselves in an operative position in terms of interacting with the modern world, that is, they viewed themselves as constructive elements in the formation of a new and progressive culture.

This relationship is not as clear in Dada and in some ways Dada production can be seen to occupy a space outside this particular framework of active/passive responses to changing technology. Rather, the relationship is one of ironic distance with Dada—a dissection of cultural readings of the machine. Yet it can also be argued that Dada contained a constructive element, primarily through its agenda of disrupting social apathy and bringing about a new and productive era of chaotic cultural exploration. This was accomplished by liberating objects and images from their culturally prescribed meanings—curiously enough, this process opened up the machine to new interpretations, while at the same time reflecting its ambivalence as a cultural marker of modernity. Kurt Schwitters had noted this constructive aspect of

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[54] Lewis, Blast 1, 153.
[55] Apollonio, 21

Dada production in terms of its potential for enhancing the creative possibilities of image-making:

> The materials are not to be used logically in their objective relationships, but only within the logic of the work of art. The more intensively the work of art destroys rational objective logic, the greater becomes the possibilities of artistic building.[56]

I would argue that the complexity of the machine's perceived role in society provided artists with an essential aesthetic tension. In turn, art provided a constructive place for attempting to work out some of the ambiguities inherent in a changing technological milieu. The machine declared itself a potent symbol both manifesting this ambivalence as well as providing a site for compensation, a talismanic function aimed at integrating new technologies with human living. However, the machine's symbiotic link with notions of progress was a double-edged blade; a polarization occurred, and mechanical realities were either reduced to a level of pure materialism, or mystified in a reverential homage to unseen forces. The rise of a machine aesthetic encompassed both these tendencies and was encapsulated in the art produced at the beginning this century.

On the side of pure materialism, new attention was paid to the 'plastic' nature of reality, where specifically mechanistic concerns resulted in both a positive and negative interest in physical/mechanical forms. Despite the theoretical and aesthetic differences between Wyndham Lewis and Roger Fry at the *Omega*, machine forms were creatively imagined and successfully employed by both in various ways, visible in the non-representational fabric and furniture designs that were produced.[57]

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[56] Kurt Schwitters, "Merz" (1920), The Dada Painters and Poets, ed. Robert Motherwell, 2nd ed. (Boston: G.K. Hall, 1981), 62.

[57] In Richard Cork's two volume monograph on Vorticism, the *Omega* is highlighted as an interesting arena for abstraction, where views of the machine, although different, contribute in the

At first it might appear that Dada was solely grounded in a certain materialism. In recounting an event where Duchamp appeared to be in awe of the plastic potential of machine forms, Léger stated:

> Before the World War, I went with Marcel Duchamp and Brancusi to the Salon de l'Aviation. Marcel, who was a dry type with something inscrutable about him, walked around the motors and propellers without saying a word. Suddenly he turned to Brancusi: 'Painting is finished. Who can do anything better than this propeller? Can you?'[58]

This brings up the possibility that Duchamp was ultimately striving for purity of form. Yet looking in retrospect at the complexity of Duchamp's work, such a simple conclusion might be false—perhaps while acknowledging the potential of a materialist perspective in rendering objects aesthetically pristine, a deeper significance is alluded to with regard to the function of material objects. The ambivalence and multi-purpose aesthetic/critical function of Duchamp's ready-mades supports this assertion.

Materialism though important, was not the sole focus of the Vorticists' work either, in that the use of machine forms went much deeper than the use of geometric motifs. In a 1914 lecture entitled "Modern Art and its Philosophy" Hulme stated that "The new 'tendency towards abstraction' will culminate...not so much in the simple geometrical forms found in archaic art, but in the more complicated ones associated in our minds with the idea of machinery." Complex imagery was explored, related

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end to the development of new pictorial forms. Cork writes: "Where Fry believed that the machine could be made subservient to the artist, Lewis wanted to acknowledge the machine and incorporate its power into his own pictorial vocabulary." Richard Cork, Vorticism and Abstract Art in the First Machine Age, 2 Vols. (Berkeley and Los Angeles: University of California Press, 1976), 87.

[58] Léger "La Vie dans l'oevre de Fernand Léger," interview with Dora Vallier, Cahiers d'Art (Paris) 29.2 (1954), 133-77, quoted in Tashjian, 104.

not only to the linearity and clean lines of machine forms, but to deeper philosophical thematics surrounding the notion of plastic and mechanical creation.[59]

Paradoxically, in tandem with a rising interest in the plastic and physical aspects of the machine, there emerged a more mystical approach to the machine, extending from its propensity for great force and abstruse functioning. Adams's essay on the dynamo outlines an eclectic yet increasingly significant trend of machine inspired spiritualism. His conflation of the mysterious forces of the Virgin with those of machine technology, in part, resembles the spiritual awe and respect for mechanistic forces present in much of the avant-garde aesthetics developed at the turn of the century.

Adams's appreciation for the powers of the dynamo is made clear when he compares his reaction to that of his companion Langley to whom "the dynamo itself was but an ingenious channel for conveying somewhere the heat latent in a few tons of poor coal hidden in a dirty engine-house carefully kept out of sight..." Speaking of himself in the third person, Adams contrasts his reaction to Langley's by stating "to Adams the dynamo became the symbol of infinity." Spiritualism is added to this awe when he compares this forty-foot dynamo to a moral force, similar to the relationship between the early Christians and the cross. He describes the sensation felt upon contemplating the miraculous machine:

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[59] Hulme felt that the urge to produce urban environments was a product of a deeper mechanical sensibility. He stated: "materials like steel 'can only be used when the inclination and taste to which they are appropriate already exist'; and this 'inclination' is a deep-seated urge, not something that comes merely from a prolonged observation on the industrial environment." True to Vorticist tenets regarding individuality of expression, Lewis saw the situation differently, explaining in the Forward to his 'Cubist Room' that "a man who passes his days among the rigid lines of houses...will eventually possess a different habit of vision to a man living amongst the lines of a landscape." See Cork, Vorticism 141.

> The planet itself seemed less impressive, in its old-fashioned, deliberate, annual or daily revolution, than this huge wheel, revolving within arm's-length at some vertiginous speed, and barely murmuring—scarcely humming an audible warning to stand a hair's-breadth further for respect of power—while it would not wake the baby lying close against its frame...Before the end, one began to pray to it; inherited instinct taught the natural expression of man before silent and infinite force.[60]

Nature seems to recede, becoming unimpressive and predictable, as the power of the man-made dynamo ascends and transplants that former territory. Its "silence and infinite forces" imply the perfection and efficiency of its functional parts, rendering it the consummate icon for modern worship.[61]

While both Futurism and Vorticism manifested this mysterious awe of the machine, they did so in critically different ways. With Futurism, it can be argued that this relationship is overt, manifesting itself in a boisterous and worshipful attitude towards the forces created through machine technologies. Speed, movement, and increased human potential through new mechanical realities are revered as life altering for the Futurists. Vorticism derided this view of the machine as receptive and deferential, and held it to be anathema to their constructive mechanical sensibilities. Ironically, while claiming that they avoided this worshipful and child-like attitude towards the machine, their aesthetic dogma of the "Vortex" as a mechanism for

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[60] Adams, "The Dynamo and the Virgin," 169.

[61] The dark underside of this "new religion" is expressed by Adams when he considers his own outdated historicism and methods of dealing with knowledge in the world. He suggests an impending chaos, resulting from the necessary re-evaluation of the past brought on by this new force: a force that implied immovable permanence and incontrovertible successions of movement, outcome and purpose. For Adams, suddenly the past seems an apparition, questionable and uncertain. By referring to himself in the third person, at once involved yet distant and removed, he observes his own monumental shift in thinking: "Where he saw sequence, other men saw something quite different, and no one saw the same unit of measure..." Finally, turning to a sequence of consequence, a cause and effect relationship more indisputable than any social or human framework, he concludes that "after ten years' pursuit, he found himself lying in the Gallery of Machines at the great Exposition of 1900, his historical neck broken by the sudden eruption of forces totally new." Adams, "The Dynamo and the Virgin, 170-1.

knowledge and creation, incorporated a mechanical language and functionality into everything that they produced. It can be reasoned then, that for the Vorticists, a mechanical process of abstraction and synthesis approached the tenor of faith and zeal appropriate to any religious sentiment, placing them alongside the Futurists with regard to the fixation on the machine as a sacred object.

An opportune example to summarize the connection between the artist, the machine, nature and religion is provided by Russolo's essay "The Art of Noises" of 1913. He begins with "Ancient life was all silence. In the nineteenth century, with the invention of the machine, Noise was born. Today, Noise triumphs and reigns supreme over the sensibility of men." He distinguishes man-made sounds from those of nature and states that with the exception of hurricanes, avalanches, storms and the like, "nature is silent." In prehistoric times, when man began to develop crude instruments and mechanisms to produce noise, "sound" was born, and these utterances were "regarded with amazement as new and marvelous things" and were seen by the primitives as attributable to the gods. Thus, intentional sounds, created independent of nature, were considered "sacred and reserved for priests, who used it to enrich the mystery of their rites." This being the genesis of sound as a sacred manifestation of spiritual powers, led to the sacred realm of music, "a fantastic world superimposed on the real one, an inviolable and sacred world."[62] This is an apt metaphor for the spirituality and mystery of any new development that is not understood by most. Mysterious forces, inscrutable and unstoppable processes, operative and wondrous

[62] Luigi Russolo, "The Art of Noises," in Apollonio, 74.

outcomes caused by machines would necessarily have a similar effect, opening onto a new realm of intentional "noise" and otherworldly experience.

A certain type of mysticism can be seen to exist in Dada's playful and fragmentary assemblage of machine imagery. I would assert that in the effort to suspend fixed cultural meaning with regard to mechanical imagery, the potential of the machine as a transitional enigma that can encompass both a materialist and a spiritual dimension is enhanced. It has been argued in the literature that the Dadaists' rupture and dislocation of cultural material places that material in a state of transition; while in this suspended state, cultural material enters a state of liminality.[63] Its function in this ephemeral space both expands and collapses, in that multiple viewpoints are allowed to co-exist at one in the same time—a sort of epistemological collapse. It is worth noting that Raoul Hausmann had typified Dada as a "plane for the appearance of conflicts."[64] Timothy Benson, in his article "Mysticism, Materialism, and the Machine in Berlin Dada," points to the social strategy of Dada as a site for mystical union. Conceived by Hausmann as a communal *Übergangsform* (form of transition) that might lead to humanity's "practical self-decontamination," he argues that for Dada, this constituted an experience of wholeness, a "living present." He goes on to conclude that despite their rejection of mystical occult

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[63] Tashjian borrows the concept of liminality from the anthropologist Victor Turner, and specifically from his study of Ndembu ritual in Africa. He partially redefines it by stating: "Outside of a ritual context, as I should like to use the term, and as Turner himself has used the term, liminality has broad reference to those individuals, objects, or situations that are structurally indeterminate, 'betwixt and between' social and cultural definitions. As a consequence, identity and definition become crucially ambiguous and ambivalent, sometimes to the extent that inversion and negations occur. Phenomena of a liminal quality have thus somehow slipped away from the established social and cultural norms." Tashjian, 102.

[64] Raoul Hausmann, Courier Dada, (Paris, 1958), 38, quoted in Benson 53.

revivals, Berlin Dada repeatedly sought the "purgative, illuminative, and unitive" results traditionally associated with mysticism and spiritual union.[65]

The importance of materialism for Dada should not be underestimated; in much of the critical literature, it is generally agreed that in pushing the material realm to its furthest limits, Dada ultimately induced a level of irony, free-play, and innovation into the machine aesthetic that ultimately caused it to exceed its own material limitations, thereby invoking a kind of visual/mechanical alchemy.[66] It has also been noted in the literature that for some of the Dadaists, a monist belief in nature's underlying structure might lead to the conclusion that all matter was imbued with divinity. Tristan Tzara wrote:

> To know how to recognize and collect the traces of the power on which we attend, which are everywhere, in an essential sign-language, engraved on crystals on shells rails in the clouds in the glass inside snow light on coal hand in the rays which group themselves around the poles of magnets on wings.[67]

The structure, order, and symmetry of the machine could be seen to exemplify this type of underlying pattern. With New York Dada, however, the machine is often cast in terms of disuse, in that functionality is impossible or frustrated in some way; Duchamp's bachelors never reach their bride, Francis Picabia's mechanistic structures are absurd and nonsensical, and in Man Ray's 1920 Danger/Dancer (alternately titled

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[65] Benson, 47.

[66] Benson argues that Dada, in its use of a pragmatic and contemporary mechanical vocabulary, strove to visually resolve issues involving human consciousness and the rising tendency towards mechanistic models of experience being provided by the sciences. He concludes that "the religious proclamation in Baader's pseudoscientific "metachemie" and Hausmann's frequent allusions to scientific theory attest to an engrossment so deep that the Dada "Machine Art " may be regarded as a kind of latter-day alchemy, an attempt to encounter the mysteries of the transaction between spirit and matter. Benson, 47. See also Richard Sheppard, "Dada and Mysticism: Influences and Affinities," Dada Spectrum: The Dialectics of Revolt, ed. Stepen C. Foster and Rudolf E Kuenzli (Madison & Iowa City: Coda Press, Inc. & the University of Iowa, 1979), 98.

[67] Tristan Tzara, *Note 14 sur la poésie*, 1919, quoted in Sheppard 96.

L'Impossibilité; Fig. 8) the gears are locked and useless. I would argue that the machine's mystical role in New York Dada is preserved through this very dysfunctionalism. Like the cultural signifiers Dada seeks to disturb, the machine rendered functionless is a destabilized object, and thus liminal, its boundaries and purpose unfixed and uncertain.

Can the liminal space of the machine be viewed as a sort of mystical simultaneity? It is in this unified meeting place of absurd and contradictory images and ideas that the mysticism in Dada becomes apparent, and is perhaps best expressed in the Dada concept of "Creative Indifference." I quote a recent and particularly useful analysis of Hausmann's work by the writer Matthew Biro; he states:

> Hausmann's constructive project, the material investigation of his contemporary world, for which photomontage was particularly well suited because of its empirical character, hinged upon recombining pre-existing fragments of cultural material—objects, typography, magazine and book illustrations—in such a way as to emphasize their strangeness, conflict, and multivalence. In this way, a new ambiguity could be introduced into real life to induce what Hausmann, following Salomo Friedlaender, called a state of "creative indifference."[68]

As an ever-changing site of transition, Creative Indifference is perhaps the most successful early twentieth-century artistic paradigm capable of reflecting the complexity and ambivalent nature of the machine as a visual symbol of modernity.

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[68] Matthew Biro, "The New Man as Cyborg: Figures of Technology in Weimar Visual Culture," New German Critique 62 (Spring-Summer 1994): 81.

2. The Mechanisms of Dance
Body as Function

> *Ballet Méchanique* dates from the period when architects talked about the machine civilization. There was a *new realism* in that period that I myself used in my pictures and in this film. This film is above all proof that machines and fragments of them, that ordinary manufactured objects, have plastic *possibilities*.[1]

In the early twentieth century, there existed a curious relationship between bodies and machines, a symbiotic intertwining of content, meaning, and function. As constructions of the machine in time and space were weighed and measured in accordance with social developments and changing environments, so the human body came under surveillance as an object of great portent and meaning. What is the relationship between these two developments? This chapter seeks to examine connections between the machine, the human body, and the thematics surrounding dance where the two intersect significantly. I will argue that the tensions and complications of merging humanity and the machine served a purpose as an aesthetic tool of the avant-garde and that it found a place of mediation in the theme of dance. Dance, and more importantly, the figure of the dancer, became a site of unification between opposing forces and/or paradigms: organic vs. mechanical; art vs. life; humanity vs. dehumanization; body vs. mind; male vs. female. Finally, the iconic role played by the dancer in early twentieth-century art must be examined with regard to its social meanings. Dance, the body, and issues of gender interact with technology in such a way as to call into question purely celebratory readings of the dancer; this is particularly true in the work produced by the Dadaists.

Examining cultural production in the early twentieth century reveals the connection between dance and the visual arts. The Ballet Russes impacted both

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[1] Fernand Léger, "Ballet Méchanique" 1923-24, Functions of Painting, trans. Alexandra Anderson, ed. Edward F. Fry (New York: The Viking Press, 1973), 48.

Parisian society as well as the art world, introducing passion and innovation where previously only enervation had existed in Western European ballet.[2] A mutually beneficial relationship between the Ballet Russes and the avant-garde was established: modern art lent the ballet a contemporary air, and the ballet lent notoriety and exposure to artists' work in the form of stage sets, designs, and collaborative choreography.[3] The Futurist painter Giacomo Balla designed the set and lighting for Stravinsky's Fireworks (1917), which was more light show than ballet, illustrating the flexibility and novelty of the company's experimental tendencies.

Modernist symbols found their way into the ballets through several routes; in the final scene of Nijinska's 1926 production of Romeo and Juliet, Max Ernst and Joan Miro designed the set design involving an elopement in an airplane.[4] Such was the level of involvement, that in 1920, the creation of the Ballets Suédois was undertaken by Rolf de Maré, and various members of the french avant-garde: the poets Blaise Cendrars, Jean Cocteau, and artists such as de Chirico, Léger, and Francis Picabia. Their final Dadaist performance, a ballet entitled Relâche (1924), involved a backdrop designed by Picabia. In this, row after row of automobile headlights dimmed and brightened again during the performance.[5]

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[2] Susan Au, Ballet & Modern Dance (London: Thames and Hudson, 1988), 76.
[3] Ibid., 77, 105-106. Jean Cocteau, Picasso and members of the Russian avant-garde such as Natalia Gontcharova, and Mikhail Larionov were all at one time or another involved with the Ballet Russes. Jean Cocteau contributed by designing posters of Karsavina and Nijinsky in *Le Spectre de la Rose* (1911); Picasso worked with the company in 1917 on a number of ballets (Parade, 1917; Le Tricorne, 1919; Pulcinella, 1920; and Cuadro Flamenco, 1921), and Gontcharova's set designs and costumes transformed by cubist principles were used in Le Coq d'Or, 1914 and the 1926 revival of *The Firebird.*
[4] Ibid., 106.
[5] Ibid., 114.

At first, this interest in dance amongst the avant-garde appears incongruous; arguably, the emotionality and expressiveness of dance contrasts with the austere abstraction of modernist machine imagery. It is in this conundrum that we will find the power of the dancer as a central metaphor for larger concerns. Why was dance a focal point for both the visual and performing arts at this time? An additional line of questioning leads us to gender issues; how was gender constructed within representations of women in dance, and how did this relate to the social status of both dancer and artist? These questions, though crucial, are too vast to undertake in the present chapter. However, when the question centers on mechanical motifs, many intriguing issues can be raised; the coalescence of opposing paradigms within the dancer as symbol leads to a deeper understanding of the machine's role in discourses surrounding the "body" in modernity.

Our first clue regarding the seemingly irrational link between the expressiveness of dance and the hardness and unemotional quality of the machine lies in the aesthetics of function. In opposition to predominant nineteenth-century conceptions of the "beautiful," Léger promoted the notion of beauty *through* utility:

> Where the question becomes more subtle is where one imagines mechanical creation with all its consequences, that is, its *aim*. If the goal of earlier monumental architecture was to make Beauty predominant over utility, it is undeniable that in the mechanical order the dominant aim is *utility*, strictly utility. Everything is directed toward utility with the utmost possible rigor. *The thrust toward utility does not prevent the advent of a state of beauty.*[6]

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[6] Fernand Léger, "The Machine Aesthetic: The Manufactured Object, the Artisan, and the Artist" 1924, Functions of Painting, 53. Léger's notion of effective form coincides with an aesthetic of beauty based on utility as well as tradition. Tracing a historical lineage, he documents the supremacy of effective form, finding such indicators in the architecture of the past, through the Greeks, past the Romanesque and Gothic periods, and into the modern, where machines and machine-made objects were viewed as embodying the same geometric principles that had always existed. Proclaiming a "new architectural order" based on the aesthetic of the machine, he links it to the past by stating that it is simply "one architectural manifestation like the others." Further, he concretizes the connection by stating: "One can assert this: a machine or a machine-made object can

Where the function and movement of the limbs in dance can be seen to express a given end, or to result in a specific somatic outcome, the utilization of the body in the articulation of thought can be seen as approaching a state of beauty. Gret Palucca was a dancer who embodied certain aspects of this functionality. She was admired by many abstract painters for her interest in abstraction, and the "logic" and "clarity" of her dancing. Based on her movements, Kandinsky made sketches of her, and members of the Bauhaus termed her "the most lucid of today's dancers," claiming that for them, she was a "newly found law of motion."[7]

Dada production, in its usual witty and sardonic examination of cultural material, may have been commenting on this new aesthetic based on the beauty of function. In Man Ray's 1920 Danger/Dancer (Fig. 8), a series of interlocking gears are shown with the word DANCER superimposed over them. The 'C' of the word dancer has been slightly altered to suggest a 'G,' indicating some connection between the mechanical gears and some amorphous threat. More importantly, these gears do not function properly—this is substantiated by its alternative title, *L'Impossibilité*, connoting the impossible nature of this particular mechanism. The suggestion has been made that this work, with its emphasis on the word "danger" may in fact be critiquing an overly mechanized future.[8] Another possible reading of this work, is that the Dadaists were in fact aware of this emerging metaphor of functionality and

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be beautiful when the relationship of lines describing its volumes is balanced in an order equivalent to that of earlier architectures."

[7] Rudolf Arnheim, "Visiting Palucca," Dance Scope 13:1 (Fall 1978): 6-11, quoted in Jack Anderson, Art Without Boundaries, (Iowa City: University of Iowa Press, 1997), 72.

[8] John D. Erickson, "The Cultural Politics of Dada," Dada: The Coordinates of Cultural Politics ed. Stephen C. Foster (New York: G.K. Hall & Co., 1996), 20-21.

the machine, fronted by its organic equivalent, the human dancer. Perhaps Man Ray was commenting on this emerging aesthetic, poking fun at it, while at the same time warning about the inherent dangers behind cultural constructions that lack flexibility; the dancer's strength as a contemporary symbol for the economy and perfection of function may be under scrutiny. Could he have been attempting to expand the metaphor of dancer as machine to include a multiplicity of readings? Still, in his selection of that particular paradigm, Man Ray proves that this image held resonance even for Dada, and no matter what nuanced layers of meaning and potential can be read into this work, the fact remains that Man Ray had been inspired by the "gyrations of a Spanish dancer."[9]

Whether wholeheartedly celebratory or somewhat cynically, it is the dancer's use of form and movement in relation to mechanical forces that would have been most revealing and inspirational for many avant-garde artists. Tellingly, these same qualities were enlightening for early twentieth-century writers as well. Their search for new forms of language and novel ways to translate written words led them to dance in much the same way that many early abstractionists found meaning in corporeal machinations. In his review of Nijinsky's *Le Sacre du printemps*, Jacques Rivière stated of words and language:

> ...by means of this tangible figure we are brought closer to them [words] and put into their presence in a more immediate manner; we are able to contemplate them before the arrival of language. There is no need of translation; this is not a sign from which the subject must

[9] Man Ray quoted in Linda Dalrymple Henderson, "Reflections of and/or on Marcel Duchamp's Large Glass," Making Mischief: Dada Invades New York, ed. Francis M. Naumann and Beth Venn (New York: Whitney Museum of American Art, 1996), 236. Henderson traces the interest in these movements/gyrations as a prevalent "woman as gears" theme found in earlier Dada work, most notably in Francis Picabia's *Machine tournez vite*, of 1916-18 as well as in Duchamp's rendition of the Bride's "desire-gears" from his Large Glass of 1915-23.

> be interpreted. But though our intelligence fails to grasp it, we are there; we are present through our body, and it is the body that understands...[10]

This view of language and expression found contemporary support in the writings of anthropologist Havelock Ellis, and other critics and philosophers, all of whom believed that dance was the most immediate translation of human thoughts, feelings and ideas. In his 1923 essay "The Dance of Life," Ellis stated that dancing was the "loftiest, the most moving, the most beautiful of the arts, because it is no mere translation or abstraction of life; it is life itself."[11] Can dance then be seen as the point of mediation between the abstraction of art and the immediacy of "life"? Perhaps dance was a place wherein early abstract artists could meld art and life in such a way as to express their goals and aesthetic premises without fear of obscurity or abstruseness, a place where the populace urge might be satisfied yet the sanctity of art undisturbed?

Modern dance can be viewed as a newly emerging kinetic language, and it is interesting to note that the ambivalences and complexities existing within that particular genre in many ways paralleled the same issues evolving in modern art. The emotive expressiveness and instinctive abandon of such early twentieth-century dancers as Isadora Duncan and Ruth St. Denis could be contrasted with the abstract shapes and formations of dancers like Loïe Fuller. These American dancers were

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[10] Jacques Rivière in What is Dance?: Readings in Theory and Criticism, edited by Roger Copeland and Marshall Cohen (New York: Oxford University Press, 1983), 122, quoted in Terri A Mester, Movement and Modernism: Yeats, Eliot, Lawrence, Williams, and Early Twentieth-Century Dance. (Fayetteville: The University of Arkansas Press, 1997), 19-20.

[11] Havelock Ellis, "The Dance of Life," The Dance Anthology, ed. Cobbett Steinberg (New York: New American Library, 1980), 254, quoted in Mester, 23.

admired and their careers followed by many artists, and this interest may explain some of the preoccupation with dance evident within works of the European avant-garde.[12] Duncan herself, was a locus for artistic frenzy and fascination. In part this was due to the scandalous and well-publicized aspects of her life, but more importantly, she was a symbol of the potency of individualism, and this extended out of a deeper interest in human expressiveness and freedom. In addition, her concern with natural phenomena and a "repertory of human movement" may have provided a model of efficiency and economy for artists contemplating the abstract.[13] Loïe Fuller, with her experimental approach to lighting and costuming, created abstract forms on stage that rivaled the processes of abstraction occurring in other fields within the arts. In many ways, she was a pioneer of stage technology. Utilizing long sticks, billowing sleeves, darkened backdrops and lighting techniques, she often created abstract configurations that obscured the shape of her own body, forms that were seemingly suspended in mid-air.[14]

The complexities and conflicts between representation and abstraction, mind and body, form and function, and the physical and spiritual were partially resolved for many artists and writers in the innovations emerging in dance at the beginning of the century. William Butler Yeats said of dance that it was a place where the split

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[12] Au, 87. Each dancer considered herself an artist rather than entertainer, and they attracted the attention of other artists whether they be writers, musicians, painters and/or sculptors. Oddly enough, Fuller and Duncan first won widespread acclaim not in their home country, but in Europe.
[13] Au, 89. In terms of individual expression, Isadora Duncan was often seen as a symbol of female longing, where the hidden desire for emancipation from traditional roles of wife and mother were complemented by an endorsement of sexual freedom and personal fulfillment. Ironically, though she was admired by many artists who rejected certain aspects of naturalism, she herself employed a natural approach to movement and choreography, rejecting anything that seemed awkward or unnatural.
[14] Mester, 16.

between body and soul was rendered impossible. Because of this, he felt that the dancer functioned as a symbol of unity, a being who could shield and protect the artist/poet from the world of the modern, a world which had become through the process of modernization, a "bundle of fragments."[15]

The poet Arthur Symons also advocated dance as a site of unity, but for him, the reasoning was related to the necessary prestige of art in the face of commodification. Dance belies the division between life (ordinary experience) and art through unity. At the same time, however, because dance symbolized an ambivalent space between the physical and the spiritual, this unity was privileged and removed from everyday life, and therefore the division between art and life remained intact, and the prestige of "art" preserved.[16] Dance, according to Symons, represented both control over the physical realm and transcendence of that same realm. In some formulations, the dancer's identity is the least important element in this process of signification. Symons's use of the dancer unifies art and nature, but only where both terms are abstracted to the level where they can meet. In this event, the mediating term, the dancer, on which this unity is enacted, undergoes a process of effacement.[17]

It is under these conditions that the dancer is most useful to the visual artist. When she becomes mere symbol, she opens up a space for critical and aesthetic discourse.[18] The dancer as "symbol" means that she has ceased to be *human*, and this

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[15] William Butler Yeats, Autobiographies (reprint, New York: Macmillan, 1988), 189, quoted in Mester, 32-3.
[16] Amy Koritz, Gendering Bodies/Performing Art: Dance and Literature in Early Twentieth-Century British Culture (Ann Arbor: The University of Michigan Press, 1995), 64.
[17] Ibid., 65.
[18] I use the term "she" to describe the dancer, because this is the most frequent gender specification made by the writers at this time, particularly where themes of modernist aesthetics are concerned.

is supported by the literature of the time in which the dancer is variously described as inhuman, impersonal, superhuman, or transcending the realm of the human. As early as the end of the nineteenth century, Mallarmé had described the ballerina as an otherworldly creature who wrote poetry with her body. He further stated that she appeared before the viewer as an impersonal vessel, a formation that was indicative of abstract, preliterate suggestions.[19] Mallarmé felt that the dancer could express things through dance that the written world could only do in extremely cumbersome terms. He typified her as the "unwritten body writing," and claimed that what she did was more instinctive than poetry. His veneration for dance is clear when he implored the poet to "...humbly place the Flower of your poetic instinct ...at that sorceress' feet... through her always ultimate veil she will give you back your concepts in all their nakedness, and silently inscribe your vision as would a Symbol—which she is."[20]

The dancer in the writings of Paul Valéry was further reduced to "thing" status, when he claimed that the dancer's world was "an almost inhuman state," and referred to her as an "it," whose eyes resembled "unknown jewels like those of which Bauderlaire speaks."[21] All of these steps are crucial in understanding the place of dance as a theme within the machine aesthetic. The dancer becomes the exemplary human machine *because* her mechanism is one of unification: she is the place where the emotionalism of humanity and the physicality of mechanical truths meet, and it is

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The concomitant gender issues that accompany this process denotes a crucial area that begs analysis, one that I can only touch on within the limited scope of this project.

[19] Stéphane Mallarmé, "Ballets," What is Dance?: Readings in Theory and Criticism, edited by Roger Copeland and Marshall Cohen (New York: Oxford University Press, 1983), 112, quoted in Mester, 15.

[20] Mallarmé, 115, quoted in Mester, 19.

her transcendence of that realm which renders her a potent symbol of modernism. According to José Ortega y Gasset, dehumanization in art is an attempt at purification through a conscious deformation of reality.[22] If the dancer in some senses becomes "superhuman," then perhaps she symbolized for early twentieth-century artists all that humanity ascribes to, encapsulating the best and the worst of human agency in a form that was open for discourse and artistic exploration.

Interestingly, within Vorticism, the most common subject matter utilizing this automatic figure involved the notion of dance. In opposition to the Futurists' method of depicting objects in motion, blurred by the inexact nature of human perception, the Vorticists strove to depict the central mechanistic functioning of movement devoid of any motion. Tension between explosive forces and a centralizing mechanism of control can be felt in both figurative as well as more abstract Vorticist constructions; but in the realm of the figurative, the use of the machine to replace the naturalistic appearance of biological beings, produced in many cases, depictions of the human-self as a mere automaton, a structure for opposing forces and energized masses. What lay at the heart of dancing was a coalescence of these forces, actions, and mechanisms, all working in tandem to produce an effect. Therefore in reversal to the Futurists' interest in motion through the machine, the Vorticists focused on the machine via motion, rendering their dancer as an iconic expression of force, balance and function.

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[21] Paul Valéry, "Philosophy of Dance," What is Dance?: Readings in Theory and Criticism, edited by Roger Copeland and Marshall Cohen (New York: Oxford University Press, 1983), 61, quoted in Mester, 15.
[22] Mester, 15-6.

Curiously enough, themes associated with classicism find their way into much of the work produced by the Vorticists. In Wyndham Lewis's painting Dancing Ladies (Fig. 9), the choice of dance as a theme is utilized again to represent an energetic abstraction of forces. While at once utilizing the theme of dance as a suitable outlet for form and motion, he remains distanced, employing a sort of classical detachment. The emotive and expressive aspects of dance are negated so that the cerebral aspects of choreography and precision can prevail. True to the intellectualism inherent in a Vorticist execution of form, rather than convey the expressive delight and physical freedom of dance as other artists might have done, Lewis remains calculating in his depiction of bodily movement; restraint seems to be the key, supporting the assertion that in the end he undertakes a type of classical detachment and control with regard to the human figure.[23]

This classical detachment, and an emphasis on an overly analytical approach to mechanical forms and forces, is reflected in the writings of Ezra Pound.[24] His Vorticist writings were in many cases central to the development of its aesthetic, particularly on such themes as the vortex, classical balance, and the role of the artist as the translator of the world's raw material into art.

In The New Age, January 14, 1915, Pound explores the notion of organized form, categorically defining it as "a confluence of forces." According to Pound, these forces, whether they be "love of God," the "life-force," or simple human emotion and passion, are properly organized only through the appropriate inner mechanism, a

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[23] Richard Cork, "Wyndham Lewis and the Drogheda dining-room," The Burlington Magazine 126 (Oct. 1984): 617.

[24] An interesting discussion of Vorticism's balance between "combative rebellion" and "Classical

"suitable" structuring element that can best transform them into a meaningful and expressive arrangement of form. As an example he discusses a plate of iron fillings, best organized with the use of a magnet: "It is only by applying a particular and suitable force that you can bring order and vitality and thence beauty into a plate of iron filings which are otherwise as "ugly" as anything under heaven..."[25]

It is in the image of the vortex that this "suitable force" becomes a theoretical metaphor in the visual arts.[26] Significantly, for Pound, the image of the Vortex finds its source in classical antiquity. In 1892, John Burnet published Early Greek Philosophy, and it is likely this text which influenced Pound's thinking about organized form and the power of the vortex as a structuring mechanism. In Burnet's text, the early Greek writers are cited as referring to the four elements as they whirled in a 'vortex.' In one passage, Burnet cites an ancient Greek source: "The worlds come into being thus. There were borne along by 'abscision from the infinite' many bodies of all sorts of figures 'into a mighty void', and they being gathered together to produce a single vortex."[27]

Pound likens this process of arrangement and "suitable force" to the successful creation of "art." To prove his point, and promote Vorticism at the same

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detachment" is provided in Cork, Vorticism, 262.

[25] Ezra Pound, "Affirmations," The New Age (January 14, 1915): 277-78, quoted in Ezra Pound, Ezra Pound and the Visual Arts, ed. Harriet Zinnes. (New York: New Directions Books, 1980), 7.

[26] It is interesting to note that Pound first used the word 'vortex' in a 1908 poem entitled 'Plotinus,' where he wrote: 'As one that would draw through the node of things,/Back sweeping to the vortex of the cone,/.../I was an atom on creation's throne'. His use of the term, both as a philosophical category (as here in 'Plotinus'), as well as in his later use of the term to describe his interest in electromagnetic theory, indicates his abiding fascination with a scientific vocabulary. It is not surprising then, that he could have been so poetic about the machine. Pound quote taken from Collected Early Poems of Ezra Pound, ed. Michael King (1977), 36, found in Ian F.A. Bell, Critic as Scientist: The Modernist Poetics of Ezra Pound (London: Methuen, 1981), 146.

[27] John Burnet quoted in Timothy Materer, 'Pound's Vortex', Paideuma VI, 2 (Fall 1977), 175.

time, he criticizes the work of automatic painters, by analyzing their "creative" process. Because automatic paintings are done by people who "begin to paint without preconception, who believe, or at least assert, that the painting is done without volition on their part, that their hands are guided by 'spirits,' or by some mysterious agency over which they have little or no control," then their work lacks intellectual rigour and order, and ultimately cannot be arranged through the auspices of intelligent force. Using the work of Florence Seth as an example, he typifies the forms produced through automatic painting as "organic," claiming that they resemble nothing more than leaves, and viscera, and that they lack generativity and true creativity:

> It is not surprising that the human mind in a state of lassitude or passivity should take on again the faculties of the unconscious or sub-human energies or minds of nature...This is not vorticism...Their work is interesting as a psychological problem, not as creation...One, as a human being, cannot pretend fully to express oneself unless one express instinct and intellect together. The softness and the ultimate failure of interest in automatic painting are caused by a complete lack of conscious intellect. Where does this bring us? It brings us to this: Vorticism is a legitimate expression of life.[28]

In a way, this balancing of instinctive forces through the organizing element of the intellect can be seen to express Pound's subscription to a classical ethos. It also lends itself to contemporary speculations about the aesthetic role of the dancer as a unifying life force between the rational and emotive planes of human experience.

It is the Vorticist's function as an artist to organize and intellectualize the instinctive confluence of forces found in the dancer's movements. How does this relate to the machine? Again, Pound provides us with a perspicacious example, one

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[28] Pound "Affirmations," 7-8.

also founded in the ideals of classicism. In a later issue of The New Age, Pound writes:

> The Renaissance sought a realism and attained it. It rose in a search for precision and declined through rhetoric and rhetorical thinking...Whatever force there may be in our own decade and vortex is likewise in a search for a certain precision; in a refusal to define things in terms of something else; in the "primary pigment."...We believe that the Renaissance was in part the result of a programme. We believe in the value of a programme in contradistinction to, but not in contradiction of, the individual impulse. Without such vagrant impulse there is no art, and the impulse is not subject to programme. The use and the limitation of force need not bring about mental confusion. An engine is not a confusion merely because it uses the force of steam and the physical principles of the lever and the piston.[29]

A useful analogy can be drawn between the mechanics suggested in this example and the mechanisms of dance. The steam, ephemeral and ill-defined, illustrates the force, impulse, or instinct behind dance. The physical parts of the machine are the functions, rules, and programmatic elements found in the artist's process of abstraction.

Pound's interest in Vorticism and its machine inspired imagery finds its root in the unification of ancient forces and modern physics. The modern technological world was not viewed by Pound as a reductive place of mechanistic truths. Rather, Pound felt that modern realities, including technology and contemporary physics, shared an underlying system of energy with the magic and religions of the past.[30] This begs the question: is the machine simply a modern icon of classicism? Here we have an approach to form based on balance and control, a very reductive, physical mechanism that often utilizes less rational, less explicitly obvious "fuels" and

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[29] Ibid 28-9.
[30] Bell 136-37

"forces." Further, it is in the realm of energetics that an ongoing debate at the turn of the century between materialism and vitalism found partial resolution. Through the vocabulary of contemporary physics, the language of energetics formed a link between the solidity of observable phenomena and more ephemeral systems of force.[31] For Vorticism, the dancer can be seen to occupy that site of unification, perhaps as an emblematic referent to the vortex; in the dancer, the metaphysical meets the mechanical.

Could we also consider dance then, as a kind of machine, a place where the emotionality and passion of human instinct can merge with the rational will of "man"? In Blast No. 2, Pound admiringly quotes Laurence Binyon from his text The Flight of the Dragon: "Every statue, every picture, is a series of ordered relations, controlled, as the body is controlled in the dance, by the will to express a single idea." According to Cork, Pound maintained that this "blend of discipline and inspiration" was present in a gifted dancer, illustrating the importance of "single minded motives" in art.[32] It is not the body of the dancer which controls the physical outcome of his/her steps, but *the will to express a single idea.* Pound's earlier statement that during the Renaissance a sense of realism was achieved through the search for precision can be related to early twentieth-century visual culture. From this perspective, artists' search for an authentic means of "modern" expression can be seen as the same search for precision and exactness; it can be viewed as an attempt to

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[31] Martin A Kayman, "A Model for Pound's Use of 'Science,'" Ezra Pound: Tactics for Reading, ed. Ian F. A. Bell (London: Vision, 1982), 86-87.
[32] Cork, Vorticism, 393.

express and define newly understood realities through pictorial "languages" appropriate to that time.

It could also be said that the 'dancer as symbol' bears a talismanic function.[33] I refer back to Mallarmé and Symons's ecstatic description of the dancer as 'inhuman;' in the transcendence of the body, there is a suggestion of mastery and possible control over the physical realm. This suggestion plays itself out within the development of Futurism. Boccioni's 1913 sculpture, Unique Forms of Continuity in Space (Fig. 10) reflects an altered human sensibility—a central element in Futurism's mechanical rigour and machine enforced aggression. Beyond the traditional Futurist themes of speed, flux, and interpenetrating planes of spatial awareness, the inclusion of a mechanized and brutal residue of combative human spirit suggests that the 'new man' is merging with the stronger physical forces implied through mechanization.[34] Yet at this stage of Futurism, and particularly in the work of Boccioni, there is an ambivalence between combative forces that aggressively alter their surroundings, and the receptive awareness of how the body functions in space. Subjectivity and human sensory experience lay at the heart of this relationship.

For others within the Futurist movement, the mechanical figure, divested of all human emotion, was viewed as a strong symbol leading to the fortification of humanity in the face of technology change. In Marinetti's "Multiplied Man and the Reign of the Machine," the identification between "man" and "motor" is made explicit, culminating in an inhuman state of mechanical splendour. Beginning in 1913,

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[33] Mester, 32.

[34] Stephen Kern, The Culture of Time and Space: 1880 - 1918 (Cambridge: Harvard University Press, 1983), 122-3.

a curious change can be felt within the Futurist movement regarding this symbiotic arrangement, a change which brought their machine aesthetic more in line with that of the Vorticists. Here, the notion of 'discipline' creates an equivocation in theory regarding the placement of emotion within human sensory knowledge. Previously, emotion and psychological flux had earned a place as one of the central tenets of the Futurist construction of the machine. The celebration and darker anguish of the city, the delight in speed, the euphoria over an increased sense of time and space, and finally optimism in light of possible futures, these aspects of Futurism seem suddenly to be modified by this meshing of man and machine as suggested in the literature. Marinetti chillingly refers to a lack of humour and brevity when he states:

> ...we look for the creation of a nonhuman type in whom moral suffering, goodness of heart, affection, and love, those sole corrosive poisons of inexhaustible vital energy, sole interrupters of our powerful bodily electricity, will be abolished... We believe in the possibility of an incalculable number of human transformations, and without a smile we declare that wings are asleep in the flesh of man.[35]

Man and machine reach their ultimate convergence when Marinetti predicts:

> This nonhuman and mechanical being, constructed for an omnipresent velocity, will naturally be cruel, omniscient, and combative...He will be endowed with surprising organs: organs adapted to the needs of a world of ceaseless shocks...The multiplied man we dream of will never know the tragedy of old age!...To this end the young modern male, finally nauseated by erotic books and the double alcohol of lust and sentiment, finally inoculated against the disease of *Amore*, will methodically learn to destroy in himself all the sorrows of the heart, daily lacerating his affections...[36]

Dance plays an intriguing role in this later hardening of humanity within the Futurist machine aesthetic. In 1913 Valentine de Saint-Point, one of the few acknowledged female futurists, developed *Metadance*, a form of dance that was characterized by austerity, geometry and a rejection of human emotion. Saint-Point

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[35] F.T. Marinetti, in Marinetti: Selected Writings, ed. R.W Flint, trans. R.W. Flint, and Arthur A. Coppotelli (New York: Farrar, Straus and Giroux, 1971), 91.
[36] Ibid., 91.

believed that choreography should exclude all psychological content, and instead should inherently build on abstract and anonymous elements that might attain a level of mechanical functioning in their exactness. Heavily influenced by Nietzsche, Saint-Point felt that power and individual autonomy might be reached for women only through aggression and the careful exclusion of sentiment. Further, she suggested that in order to correct society's corruptive "femininity," the human race had to promote virility to the point of brutality.[37]

Often, it seems this utilization of mechanical imagery in tandem with the figurative was misunderstood or vilified by critics at the time. Between the years of 1916 and 1922, Oskar Schlemmer of the Bauhaus worked on his Triadic Ballet. Heavily coated with white make-up, or faces hidden by masks, Schlemmer's dancers resembled dolls or puppets. The Costumes for this production consisted of highly abstracted contrivances: legs, torsos, hands and arms were compressed or disguised into unfamiliar forms, and stylization of form predominated over emotive or gestural expression.[38] The response from many critics was scathing, and the lack of emotional expression was typified as dehumanized and mechanical. One critic in 1926 stated:

> Costumes, stage and human bodies become apparatus, machinery, clockwork toys. This new ballet has absolutely nothing in common with artistic dance expression, not even with marionette or doll plays...Those who prefer the whistle of the underground, the lifeless mechanical shriek of engines and motors, to the sincere expression of human feelings, will no doubt become enthusiastic about this new "Ballet." In any case, it is very original.[39]

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[37] Barry M. Katz, "The Women of Futurism," The Woman's Art Journal 7 (Fall/Winter 1986/87): 4, 12.
[38] Au 115-6.
[39] J.S., "Dancing in Berlin," Dancing Times (November 1926): 163, quoted in Anderson, 73.

The ballet's originality was never in question, but the validity of its mechanistic means of "human" expression was. Ironically, Schlemmer's response to the criticism was one of surprise and dismay. Rather than an attempt to convey notions of dehumanization, he had hoped to explicate humanity's desire for "precision, instead of vagueness," and to illustrate the need to "escape from chaos and a longing for form."[40] Whether or not Schlemmer's aims were understood or well received, it remains of central importance that for him, dance was the most useful medium for exploring the relationships between humanity, the figurative, the abstract and the mechanical. In many ways, his search for precision and organized form can be linked back to Vorticism, and Pound's descriptions of 'suitable force.'

Theoretical speculations aside, once we have acknowledged the importance of the dancer as a site for aesthetic machination, we are still left with some important questions relating to the dancer's social significance—particularly with regard to gender issues. The dancer presents a conundrum for women at the beginning of the century. On the one hand, as I will shortly point out, the dancer was positively associated with the New Woman, and with modernity and social change.[41] On the other, however, she presented an ambivalent site for the expression of underlying fears regarding the destabilizing effects of modernism.

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[40] Susanne Lahusen, "Oskar Schlemmer: Mechanical Ballets?" Dance Research 4:2 (Autumn 1986): 67, quoted in Anderson, 73.

[41] Further, as with all issues of representation, when one cultural group seeks to portray another, complicated questions arise about motivation and intention. The fact remains that outside of a handful of women artists, by and large, images of femininity, no matter how positive or laudatory, were being constructed by male artists, within a predominantly male art world. That said, it should be noted that it was within this patriarchal framework that the worth and significance of the female form was decided within the ongoing discourses surrounding modernity.

It has been argued, for instance, that Man Ray's Danger/Dancer as well as many New York Dada portrayals of the female form as a collection of gears, masks an underlying fear of social change with regard to the New Woman. From this perspective, changing gender roles presented both a threat to male power, as well as to male sexuality at the beginning of the twentieth century. In many Dada works, such as Francis Picabia's Machine Turn Quickly (*Machine tournez vite*) of 1916-18 (Fig. 11), Jean Crotti's The Mechanical Forces of Love in Movement (*Les forces méchaniques de l'amour en mouvement*) of 1916 (Fig. 12), and Marcel Duchamp's The Bride Stripped Bare by her Bachelors, Even of 1915-23 (Fig. 13), the mechanical woman is outlined in terms of sexual functioning. However, this function is arrested or frustrated; the sexual act is never completed, and metaphorical unification/satisfaction is therefore always beyond reach.[42] Could this indicate a sense of alienation due to the newly emerging autonomy of women within modernism? Further, the suggestion has been made that the gears of Duchamp's and Man Ray's mechanical woman represent sharp teeth; women in this reading are objects of both fear and desire, ultimately leading to the misogynous portrayal of them as inhuman mechanical monsters.[43]

This reading of the mechanical woman/bride/dancer as misogynous is extremely problematic however. It must be noted that Dada art production, in its irreverence, wit, and frequent humour, likely did not have such mundane and negative

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[42] Barbara Zabel, "The Machine and New York Dada," Making Mischief: Dada Invades New York, ed. Francis M. Naumann and Beth Venn (New York: Whitney Museum of American Art, 1996), 282-83.
[43] Ibid., 283.

aims in mind. While ambivalence towards the New Woman is a valid reading of these New York based works, it is not the only possible reading. Perhaps these images served to critique the predominant aesthetic of functionality where views of the machine as a collection of pulsating and vibratory forces might have been masking unacknowledged and sublimated sexual undercurrents. Either way, the female form/personae was being used as a dialectical space, but the plethora of possible readings of these works disallows conclusive statements about Dada's underlying meaning.

Dada's interest in cultural conceptions of the "New Woman," and in her American counterpart, "La jeune fille américaine" was as celebratory as it was complex. The symbol of the young American girl was prized primarily for her sense of freedom and her ability to balk at convention, being seen as both capricious as well as innocent.[44] A range of myths surrounding this particular construction of femininity arose, all having to do with movement, strength and the "modern."[45] Dada took the image of the "young American girl" and examined its significance in terms of the link between technology and notions of what it is to be a "modern" being. In Picabia's Portait of a Young American Girl in a State of Nudity (*Portrait d'une jeune fille américaine dans l'état de nudité*) of 1913 (Fig. 14), a spark plug is shown with the term "Forever" printed on its side. As inscrutable as this work seems to be, the

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[44] Elizabeth Hutton Turner, "*La Jeune Fille Américaine* and the Dadaist Impulse," Women in Dada: Essays on Sex, Gender, and Identity ed. Naomi Sawelson-Gorse (Cambridge: MIT Press, 1998), 5.

[45] Ibid., 7-8. In May 1917, Diaghilev's Ballet Russes performed a ballet entitled *Parade*, containing a segment on the *jeune fille américaine*. The ballerina Marie Chabelska wore a costume inspired by the American school girl, and danced with abandon and endless energy, characterizing the freedom of the new woman in society. Most importantly, the backdrop for the ballet was comprised of dynamos, typewriters, airplanes and express trains, all to the sound of sirens.

connection between a shift in gender relations and the mechanistic functioning of a new machine-age culture is made explicit. This work has been examined in terms of its portrayal of a mechanistic approach to human relations, but perhaps the absurdity of the image should also be emphasized. Again, it is possible to read a certain level of sarcasm into this work; the popular conflation of the New Woman with machine-related symbols of the modern takes on a perplexing appearance through the playful semantics of Dada.[46]

As one of the few female members of Dada, Hannah Höch's portrayal of the dancer is worthy of closer examination. She too explored the theme of the New Woman with regard to dance and technology, but her procedures and intentions appear to be somewhat different.[47] Höch, working within the context of Weimar Germany, was increasingly interested in the status of women, as is evident in her approach.[48] Her work is a powerful indicator of the conflation between the dancer

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[46] Ibid., 13. It is necessary to draw attention to Picabia's earlier work Udnie of 1913, which dealt with the female form and technology in relation to dance. The fact that his earlier work somewhat poetically combined the organicity of the female form with the sheen and metallic smoothness of machine imagery is significant, particularly when it is compared with the harsh, mechanistic, and far more witty portrayal of the same theme as a spark-plug. It might be said that Picabia underwent a process of refinement where the connection between the use of the female form and symbolic markers of modernism became less and less assumed, instead, coming under scrutiny itself as a cultural construction that might be advantageously explored.

[47] It is interesting to note that while utilizing machine imagery in her photomontages, Höch tended to represent the female form in its original "organic state"—at least in the beginning. Though she fragmented the body of the dancer by cutting and pasting image upon image, she tended to utilize the dancer in a composite fashion, that is to say, rather than the dancer functioning as a symbol on her/its own, the dancers in the work of Höch are merely visual components of larger montaged images. Thus, it might be said that the dancer was less a symbolic site for the resolution or exploration of aesthetic questions and/or forces, but that she might have had a specific additive function, maintaining the same meaning from work to work, possibly one that included a certain level of identification between the image and agency of the dancer and the female viewer.

[48] Maud Lavin's definition of the New Woman with respect to the work of Hannah Höch proves extremely useful. She outlines the "New Woman" as the "cumulative perception of female stereotypes, collected over time by women newly self-conscious of their modern status—and by their observers." Lavin points to the fact that during the years of the Weimar Republic, changes in the status of women were dramatic, with more women working for wages and interacting in an urban

and modernity; she culled images from the mass media and other forms of print material in order to explore her themes, and it is in the visually charged environment of her montage methodology that cultural signifiers revealed themselves most clearly. Maud Lavin, in her text Cut with the Kitchen Knife, the Weimar Photomontages of Hannah Höch, makes the point that for many women, the mass media presented images which played on their fantasies of liberation. The strength, agility and free expression of the dancer was one such image that must have held great portent for women who considered themselves "modern." Lavin also draws attention to the fact, however, that these same images held a certain amount of danger for women due to their idealized nature; through the self-identification with impossible illusion, the viewer was at risk of developing either narcissistic or masochistic tendencies. Lavin argues that through the disruptive technique of montage, where images are violently spliced and the fragmented parts subjected to a transformative process of juxtaposition, Höch disrupts this potentially harmful process of identification. In its place, the viewer is exposed to unsettling new representations that hold their own form of pleasure without compliance.[49]

In Höch's photomontage Cut with the Kitchen Knife Dada through the Last Weimar Beer Belly Cultural Epoch of Germany (*Schnitt mit dem Küchenmesser Dada durch die letzte weimarer Bierbauchkulturepoche Deutschlands*) of 1919-20

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context, as well as gaining a significant amount of autonomy, at least in theory. Maud Lavin, Cut with the Kitchen Knife: The Weimar Photomontages of Hannah Höch (New Haven: Yale University Press, 1993), 4.

[49] Ibid., 5-6.

(Fig. 15), these themes are evident. Several dancers are scattered throughout the work, one of the central figures being that of "Niddy" Impekoven, spinning underneath the head of Käthe Kollwitz. Elsewhere, machines and other signs of technology as well as athletes and ballerinas occupy important places alongside one another, the dancers often with supplanted heads from other sources (George Grosz in one case, Wilhelm Herzfelde in another). This suggests that Höch associated the female figures with Dada and the "new."[50]

It is crucial to recognize that Höch's use of the female figure, the female dancer in particular, parallels other Dada strategies of destabilization. Ironically, in two of her later montages, the function of the dancer seems to echo the ways in which Pound subscribed to the aesthetics of classicism. In English Female Dancer (*Englische Tänzerin*) and Russian Female Dancer (*Russische Tänzerin*), both of 1928 (Fig. 16 and 17), Höch depicts herself and her then lover Til Brugman as two montaged heads, precariously balanced on dancers' legs. Lavin argues that because they were autobiographical, they bring to mind the notion of a fragmented self which must then be balanced. The dancer in these works becomes that site of equilibrium, where the New Woman, Dada, and self-identity can find an amicable peace.[51]

Dance as a site of equilibrium also serves to balance the sexes, providing a theoretical space in which to explore issues of gender identity. In Höch's Equilibrium (*Equilibre*) of 1925 (Fig. 18), the small figure of a child dancer stands atop the hand

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[50] Ibid., 22.
[51] Ibid., 146.

of an androgynous figure who is wearing a monocle (a reference perhaps to Höch's Dada dandy personae). The sex and status of the figures is ambiguous; Lavin suggests that they could even represent Raoul Hausmann and Höch herself, although this is just one of the many possible readings.[52] The dancer presents an image that can encompass such ambiguity while still making the point that all things, no matter how fragmented, must still co-exist to some extent.

It is clear from the work of Höch that technology and the "modern" occupy a tentative and often ambivalent space. Shortly after Höch produced Cut with the Kitchen Knife..., she completed another photomontage that suggested a slightly more ominous connection between technology and the female body. In The Beautiful Girl (*Das Schöne Mädchen*) of 1919-20 (Fig. 19), a female figure sporting a light bulb as a head, sits atop an I-beam, blocked in by a crankshaft on one side, and a tire on the other. Scattered throughout the work, crowded behind and to the side of the figure are decals representing the BMW insignia. Surrounded by these symbols of technology, the female figure appears completely constricted rather than liberated by her mechanical surroundings.[53] Her body folds in on itself, sitting with legs crossed, arms turning inward, one hand clutching a parasol. Unlike the dancers in her other montages, this female body is inactive and motionless, in spite of the bathing suit she is wearing that connotes movement. Could this work be suggesting that despite the growing awareness of the need for female liberation and autonomy, the ever growing mechanized spaces of modernity may not hold the promise they once did for women?

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[52] Ibid., 146-47.

[53] Maria Makela, "The Misogynist Machine: Images of Technology in the Work of Hannah Höch," Women in the Metropolis: Gender and Modernity in Weimar Culture, ed. Katharina Von Ankum

It is not only the female body in relation to the machine that suggests cultural ambivalence towards technology. In certain Vorticist works, dehumanization as a cautionary declaration can be seen, even through the brevity of mechanical abstraction. Occasionally, the mask of mere automaton is altered to reveal a sense of loss or angst. In Lewis's The Celibate, begun around 1909 (Fig. 20), the progressive divestment of organic markers from his mechanical figure leads to a countenance of geometry that appears at once cold and dehumanized. In the background, aggressive arcs of form and the use of metallic blue reinforce the Celibate's frigid stance.[54] In The Vorticist of 1912 (Fig. 21), Lewis extends this dehumanization further to suggest the threat that an over-zealous industrialism may present. The automaton can be viewed as both enhanced by and imprisoned beneath his mechanical attributes, his mouth open in a silent scream of terror at the encroaching presence of modernity and its contingency of uncertainties.[55] Speaking of The Courtesan, also of 1912 (Fig. 22), Cork concludes that a "steadfast refusal to be merely intoxicated by modern technological advance, along with an awareness of its darker forces, characterised Vorticism from the beginning."[56]

In what way is this awareness of the darker forces of technology manifested? By what mode of expression can this conflict and loss of humanity not only be felt, but *understood*? I would argue that it is through the elements of figurative

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(Berkeley: University of California Press, 1997), 114.
[54] Cork, Vorticism, 12.
[55] Ibid., 32.
[56] Ibid., 32.

movement and bodily expression that a complex reading of Vorticism's relationship to technology is possible. Confidence inspiring utopianism aside, there are several works within Vorticism where the disturbing forces of the machine come to prophesy ominous outcomes for humanity, at least in retrospect; Jacob Epstein's Rock Drill is the consummate example of this. In the 1920s Ezra Pound wrote but never published, an essay entitled "Machine Art." Much of our later understanding of early machine imagery is coloured by our knowledge of its destructive potential; this does not diminish the present power of many of these images. It is ironic that he chose to photograph and write about a drill grinder in order to emphasize the purity of form and lack of extraneous associative references that machine parts could promote. He states that the examination of such objects allows one to appreciate their purely formal properties:

> Nobody is going to be distracted from contemplation of the *shape* of these objects by thinking how they affect his morals or his religion. At least one reduces the likelihood of these causes of error to the minimum... They do not stir one to pathos by reasons extrinsic to their form.[57]

The irony of this situation presents itself on a number of levels. Firstly, it is the *removal* of the drill itself that allowed Epstein to reduce the menacing aura elicited by his sculpture. In addition, it is the amalgamation of machine forms themselves, albeit into a human figure, that allows for the development of an associative framework for the sculpture. Here, a system of gestural markers, outlined by the bowed head, the defensive posture surrounding the vulnerable organicity of the driller's offspring, and the severed and futile limbs, all seem to measure human

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[57] Ezra Pound, Machine Art and Other Writings: The Lost Thought of the Italian Years, ed. Maria Luisa Ardizzone (Durham: Duke University Press, 1996), 59.

sorrow, fear and apprehension. Therefore, it is the combination of machine elements and human gesture that allow for the richest and most complex reading of Epstein's Rock Drill. The proximity of gesture to dance is close enough for me to suggest that, in fact, Epstein's driller is engaged in a type of symbolic dance with death.

What can unequivocally be stated about the dancer in early twentieth-century art production, is that she provided a theoretical space for the aesthetic machinations of visual artists interested in the impact of technology on the human psyche. Perhaps the strongest attraction of the dancer for these artists lay in her ability to both encompass divergent and often contradictory impulses, while at the same time providing a richly evocative gestural language, open to multiple readings; in the ambiguity of the body, intellectual play finds a perspicacious outlet.

3. Metallic Identities

Individualism and the Power of the Mind

In *The Metropolis and Mental Life*, written in 1903, George Simmel explored the notion of individuality in the face of technological change. He wrote: "The deepest problems of modern life flow from the attempt of the individual to maintain the independence and individuality of his existence against the sovereign powers of society." Linking this modern experience to earlier modes of action in previous centuries, and touching on the theories of Nietzsche who called for the struggle for individualism in the pursuit of autonomy, Simmel concluded that "the same fundamental motive was at work, namely the resistance of the individual to being levelled, swallowed up in the social-technological mechanism."[1]

Responses to urban living reflected various gradations of this search for individuality and strength. According to Simmel, one of the best defenses the individual had was his increased intellectualism as a result of city living.[2] Simmel felt that the "metropolis type" used rationality and intellectual rigour as a means of warding off "fluctuations and discontinuities" which may be threatening. Thus, members of metropolitan centers shield their deepest selves in order to deal with their external environment; ultimately this serves to preserve their sense of individuality.[3]

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[1] Georg Simmel, On Individuality and Social Forms: Selected Writings, ed. and Intro. Donald N. Levine (Chicago: University of Chicago, 1971), 324. Further, for Simmel, the narrow confines of newly defined tasks through the division of labour resulted in a culture where the individual "becomes a single cog as over against the vast overwhelming organization of things and forces which gradually take out of his hands everything connected with progress, spirituality and value." Simmel, 337.

[2] Simmel states: "To the extent that the metropolis creates these psychological conditions—with every crossing of the street, with the tempo and multiplicity of economic, occupational and social life—it creates in the sensory foundations of mental life, and in the degree of awareness necessitates by our organization as creature dependent on differences, a deep contrast with the slower, more habitual, more smoothly flowing rhythm of the sensory-mental phase of small town and rural existence. Thereby the essentially intellectualistic character of the mental life of the metropolis becomes intelligible as over against that of the small town which rests more on feelings and emotional relationships." Simmel, 325.

[3] Simmel, 326.

Further, an increased intellectualism with regard to the challenges and complexities of urban living may have provided the individual with a sense of social mastery. At the beginning of the twentieth century many practicing artists seemed to manifest this approach; this chapter seeks to outline the ways in which Vorticism, Dada, and to a lesser extent, Futurism, utilized an enhanced intellectualism in order to engage with and attain mental control over their newly mechanized surroundings.

Modernization set up an intriguing dichotomy at this time; the lonely individual within the crowded conditions of urban existence is both included in the crowd, yet apart and isolated. The division of labour, the greater emphasis on the efficiency of the machine as a model for human functioning, the compressed yet discrete spaces of urban living, all these things contributed to a growing awareness of modernity as a threat to the human psyche.[4] It is crucial to take up the theme of individuality in order to examine the role of the machine in the intellectual pursuit of mastery. Attempts to preserve one's sense of self while maintaining social connections with one's environment results in the city as the perfect breeding ground for new forms of individuality in the face of public scrutiny. Complicated tensions are

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[4] It is interesting to note that the dramatic isolation of the "individual" within the crowd shares much with Romantic motifs based on mystery, and "precarious forms of consciousness," where the sights and sounds of the city are overwhelming, and therefore, alter the terrain of consciousness. The city becomes a fulcrum for isolation, despite crowded conditions. See Raymond Williams, "The Metropolis and the Emergence of Modernism," Unreal City: Urban Experience in Modern European Literature and Art, ed. Edward Timms and David Kelley (Manchester: Manchester University Press, 1985), 16. See also: John Adkins Richardson, Modern Art and Scientific Thought (Urbana: University of Illinois Press, 1971), 77. He summarizes this theme as follows: "The conception of the individual as invincibly insulated from others is ancillary to the cultural experience of loneliness and has as one of its prerequisites the existence of the modern metropolis. Of all the sensations associated with modernity the most familiar and yet uncanny is that of being alone in a crowd. Preoccupation with modes of personal alienation is particularly apparent among the intelligentsia in centers of great population growth such as Paris, which more than doubled its size between the end of the eighteenth century and the middle of the nineteenth. It was during the urbanization of central

set up between strength of character, and power in collectivity. These conditions provided a nurturing environment for artistic reform based on the exploration of shifting subjectivities: "both the alternatives and their fusion or confusion point ahead to observable tendencies in twentieth-century avant-garde art, with its at times fused, at times dividing, orientations towards extreme subjectivity (including subjectivity as redemption or survival) and social/cultural revolution."[5] A resulting shift is wrought in the conception of the crowd, leading to its perception as a supportive yet unstable element in cultural change. Where the effects of the crowd are positive and benevolent, the term 'mass' comes gradually to replace the earlier common usage of the term 'mob'.[6]

The structure and potential power of the crowd is aptly taken up in Gustave Le Bon's The Crowd published in 1895. In it he stated: "Still it is already clear that on whatever lines the societies of the future are organised, they will have to count with a new power, with the last surviving sovereign force of modern times, the power of crowds."[7] Yet, individuality in this scenario is still threatened. For Le Bon, the "crowd" was largely an unformed mass of people waiting to be guided. The crowd's potential to behave in a 'mob-like' manner ultimately threatened the notion of individual agency; the idea that a culture could be organized and operated through the gathering of cognizant individuals wishing to undertake collective enterprises is

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Europe that a sense of profound loneliness and isolation, of social estrangement, came to be seen as characteristic of human life."

[5] Williams, 17.

[6] Ibid, 18.

[7] Gustave Le Bon, The Crowd (New York: The Viking Press, 1960), 14.

something that seemed less and less likely when masses of people were viewed in this way.

As crucial as the survival of the individual is in the face of technological change, there is an equal emphasis placed on collective functioning. Crowding in urban centers, the widespread communication and dissemination of ideas through print media, and novel working conditions that demanded cooperative production, are all examples that would have contributed to a growing awareness of the potential behind collectivity.[8] Futurism clearly believed in the collective power of humanity; their revolutionary stance dictated such a position. However, the ambivalence inherent in many Futurist works suggests a certain level of psychological discomfort with technological change. The end result is the preservation of the self through the strengthening tonic of mechanization; the purging of all human sentiment renders the mechanized individual efficient and ultimately, in control. The urge to protect the self through intellectual rigour is a theme that was picked up by the Vorticists as well; they celebrated the advent of mechanical progress and the development of urbanization, and in many ways were utopian, endeavoring to alter societal attitudes towards modern forms of communication and art. In this respect, they can be viewed as believing in the powers behind collectivism. Yet this same movement also

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[8] Frederick W. Taylor's "scientific management" theories revolutionized production from the late 1880s and onward. Yet, while the collective efforts of workers could increase production and shorten the individual time spent on certain tasks, it was also felt by some to undermine the individual worker's sense of agency and control over his/her own work. For a contextual discussion of Taylorism, see Stephen Kern, The Culture of Time and Space: 1880 - 1918 (Cambridge: Harvard University Press, 1983), 115-116.

attempted to safeguard the somewhat 'elitist' aims that emphasized the protection of the individual at the expense of the masses.

Dada can also be viewed as maintaining a somewhat ambivalent attitude towards collectivism. Their work strove to alter societal attitudes and/or reactions to communication, the arts, and in particular, to cultural imagery circulating in the newly emerging realm of print media. Yet, their work was often perceived as abstruse, chaotic, incomprehensible, and/or constructed from sheer nonsense; ultimately these were signs that their work was intensely personal on some level, and therefore partially inaccessible to a wide audience.

How can one deal coherently with these seeming contradictions in the work of the Futurists, the Vorticists and Dada? The answer partially lies in the aesthetic of the machine; I would argue that this schism in human relations found itself an apt metaphor in the machine by way of its combined singularity and pluralism. The model of a mechanical structure that is made up of smaller parts working in tandem to direct the efforts of the larger design recurs as a thematic in all of these movements, although the place of agency differs between them. With the Vorticists, the seat of control lay in the directive powers of the larger design, the final plan, or central purpose of the machine—an image well represented by their conception of the 'Vortex' as an all-important central mechanism.

For the Futurists, perhaps it is more useful to think of the collective force of all parts functioning equally, an interpenetration of purpose and function that results in movement and/or change. Their rhetoric of social upheaval and the expunging of the past signifies the magnitude of this expectation of change due to technology; it is

in the arena of social relations that this change was to be felt, despite its conception essentially within the minds of a few strong individuals. It must also be said however, that despite the interest Futurism continually displayed in the machine, it was always peripheral to the dramatic realm of human generativity, that is, everything that originated in or through human relations and perception.

Finally, for the Dadaists, the components of the machine corresponded roughly to the discombobulated nature of Dada imagery. Taken in singular fashion, the images and forms used by the Dadaists reflected their cultural milieu, but put together, in often irrational and chaotic ways, these fragments of cultural material served a larger purpose: destabilization, and ultimately, changes in cultural perception. Dada, rather than using the machine as an object which might be emulated, utilized the metaphor of the mechanism—in all its derivative functional and non-functional forms—in order to explore the discontinuities behind human functioning.

The connection between issues of individuality (the preservation of self in the face of great technological change), and collectivity (where the machine served as a exemplar of human efficiency and collective functioning), led to complicated paradigms of the machine in early twentieth-century art. The ambivalent attraction/repulsion dichotomy that seemed to characterize contemporary social responses to the machine, opens up an interesting line of inquiry regarding the link between emerging technologies and the development of abstraction within the visual arts.

Influential, and valuable as a reference point, is the book Abstraction and Empathy written by the art historian Wilhelm Worringer in 1908. For Worringer, abstraction was a means by which man could seek relief from "cosmic anguish." When confronted by an external world that appears chaotic and indifferent, classical naturalism, a sign of repose and security within a culture, gives way to existential doubt. Attempts to relieve anxiety through a process of inner ideation ultimately lead to the formation of symbolically significant forms, and thus to abstraction.[9] Based partially on the writing of the art historian Alois Riegl, Worringer rejected Theodor Lipps' theory of *empathy* where primitive art was viewed as inferior and indicative of a lack of skill. According to Lipps, and widely believed by most art historians of the time, organic lines and realistic forms were seen as proof of technical superiority. Worringer disputed this assertion, insisting instead that "the stylistic peculiarities of archaic art arose not from a lack of ability but from a different kind of spiritual need."[10] In many ways, this perspective paved the way for abstraction, providing an affirmation of its importance as a valid artistic genre.

T.E. Hulme embraced this theoretical stance, and utilized it accordingly in supporting and analyzing the works of the Vorticists. For him, the opposition between geometric and 'vital' art was similar to polarizations he had already made between religious and humanist, classical and romantic art, lending support for his assertion that an end to naturalistic art and a rebirth of older, more geometric art was

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[9] Jack Burnham, Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of this Century (New York: George Braziller, 1968), 3.

[10] Richard Cork, Vorticism and Abstract Art in the First Machine Age 2 Vols. (Berkeley and Los Angeles: University of California Press, 1976), 139-40.

indicative of a stylistic shift in societal criteria for "art". This also allowed him to criticize representational art as the enfeebled "sloppy dregs" of a dying romanticism.[11]

Abstraction and Empathy was probably at its most influential just before the war when new abstract visual languages were being developed. What is the connection between abstraction and machinery? In disagreement with Worringer, Jack Burnham, writing several years later, stated that in an industrial society, rather than merely reflecting an attempt to protect oneself from the dangers of an indifferent and threatening environment, the use of abstraction was "nothing less than psychic preparation for the entire re-creation of society, including remaking the biological composition of its inhabitants." Here, abstraction surpasses mere functionality as a ritualistic adjunct, and merges with "*the types of symbolic reasoning employed by science*"[12] This psychic preparation and intellectual signification is central in rendering machine forms useable within an aesthetic framework. Therefore, the impetus to develop new pictorial languages based on the machine has implicit within it utopian overtones and constructive elements.

Mechanized man is inherently an ambivalent symbol, but one that is also constructive to some degree. A psychological approach to this image may prove lucrative in understanding the intellectual aspects of the discourse surrounding the creation of bio-mechanical beings or abstractions, particularly in the work of the

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[11] Cork, Vorticism, 140. In retrospect, these theories may seem simplified or erroneous, if one considers the cultural 'return to order' after the war. A rebirth of representational and naturalistic art was felt, but in this case, the use of classical themes and techniques can be viewed as illustrating a deep seated anxiety over the conditions of modernity rather than reflecting a stable and secure societal structure.

[12] Burnham, 4. It is important to note that this quote from Burnham extends out of a post-war context, though it is still useful in gaining insight into the process of abstraction. In addition, the

Vorticists and the Futurists. Examining the anthropomorphism of machines may provide an inroad for a deeper reading of Futurism; their mechanized man can be viewed as an aggressive attempt to deal with both the overwhelming opportunities of modern life in addition to the new constraints brought about paradoxically through that very freedom. In this respect, it can be said that for the Futurists there was pressure to assert one's individuality against unknown and potentially threatening forces. The suggestion has been made that beneath the aggression and high-spirited polemic of Futurism, a lurking fear of technology was at play.[13] Borrowing from the theories of Simmel, it can also be argued that a tendency to embrace danger may have led to a talismanic relationship with mechanisation, where an increasing need to subsume personal frailty resulted in a greater identification with the machine's flawless efficiency.[14] In such cases, the human dimension would require eradication. Where does that leave the individual?

This puzzling logistic of merging man with machine was partially resolved with Vorticism's use of the vortex, and their reconstructing of the human psyche based on notions of a *mechanized mind*. Almost from the outset, a mechanical language of order, functionality and vitalized force was employed in order to examine modern conceptual themes. Despite the use of representational imagery, the

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remaking of biological components within society is a thematic that clearly emerges in Vorticism as well as Futurism in the form of a 'mechanized man'

[13] Judy Davies, "Mechanical Millenium: Sant'Elia and the Poetry of Futurism," Unreal City: Urban Experience in Modern European Literature and Art, ed. Edward Timms and David Kelley (Manchester: Manchester University Press, 1985), 68.

[14] Davies, 68-9.

supremacy of an abstracted mechanical center of being was never in question. It can be argued that not only did Vorticism inject the machine into human structuring systems, but the very pictorial language with which that concept was expressed was to be based on the machine—not as a mere image, but as a paradigmatic example of efficiency and generativity.

Within Vorticism, a thematic of the machine as a living entity manifests itself in a variety of formats; the two most predominant provided by the human figure on the one hand, and a more abstract vitalized mechanism on the other. The importance of interpolating life into the machine is perhaps best summarized by Wyndham Lewis when he stated "A machine is in a greater or less degree, a living thing. Its lines and masses imply force and action, whereas those of a dwelling do not."[15] Therefore, the machine cannot be perceived as merely a dwelling or empty structure filled with other mechanical forms. Instead, it must be imbued with internal mechanisms that act in accordance with predetermined and purposeful forces, ultimately displaying an animation of its own, on par with biological forms of life.

These new life-like machines can then be introduced into or merged with the human figure to form a metaphor for a different kind of cognition, one based on the rationality and intellectual will of man rather than his physical needs or perceptions. Lewis asserted:

> ...in our time it is natural that an artist should wish to endow his 'bonhomme' when he makes one in the grip of an heroic emotion, with something of the fatality, grandeur and efficiency of a machine...when you watch an electric crane, swinging up with extraordinary grace and ease a huge weight, your instinct to admire this power is, subconsciously, a selfish one.[16]

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[15] Wyndham Lewis, Wyndham Lewis on Art: Collected Writings 1913-1956, introduction and notes by Walter Michel and C. J. Fox. (New York: Funk & Wagnalls, 1969), 68.
[16] Cork, Vorticism, 284.

For Lewis, the power of the machine would inevitably be reflected in the heroic nature of the new man.

That an energetic and heroic new form of mechanical life would also reflect the discipline, rationality, and intellectual superiority of all that was best within the human realm is suggestive of, and coincides with, the central Vorticist image of the vortex. For this reason, the dynamic nature of many Vorticist works is usually contained and controlled within well defined contours and a rigorous use of line and rhythm.[17] The Vorticists found in the 'vortex' a symbol for controlled explosion, and eruptive discipline—an oxymoron that resolves itself through the point of origin; the motionless centre point of stillness renders the structured chaos of the vortex supremely logical.[18] Ezra Pound, who chose the term, declared that this image might combine "combative rebellion with classical detachment." Essentially, this dichotomy would provide the rebels with an important aesthetic tension; diagonal forms thrust outward, yet are held in check by the emphasis of precision and solidity of construction.[19] Could this aesthetic tension be related to a mechanical form of classicism where an attempt to control or elide irrational impulses results in a modernist translation of chaos into order?

In contradistinction to the Futurists, the Vorticists turned their gaze to the city, not in order to celebrate the chaotic simultaneity of interpenetrating noises,

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[17] Richard Cork, "The Submerged Civilization of Wyndham Lewis," Arts Magazine 60 (Oct. 1985): 96.
[18] Giovanni Cianci, "A Man at War: Lewis's Vital Geometries," Volcanic Heaven: Essays on Wyndham Lewis's Painting & Writing, ed. Paul Edwards (Santa Rosa: Black Sparrow Press, 1996), 18.
[19] Cork, Vorticism, 262.

sensations, and the bombastic festivities of 'modern capitals,' but to explore a plastic interest in urban and mechanical structures. Even the inhabitants of cities were reduced within this context, assessed and processed through the vortex. The critical difference between the pictorial dynamism of the Futurists and the structured synthesis of the Vorticists can be summarized by the differing ways they depicted objects in their environment. The Vorticists strove to utilize clarity and precision with regard to the world's contours, while the Futurists attempted to breakdown the materiality behind all objects, in order to examine the fluctuating forces and energies that lay behind the manifest nature of such contours. This approach was generally true of more abstract formations as well. In addition, the Vorticists' goal was to synthesize all their material into one coherent image in opposition to the Futurists who, following the principle of simultaneity, strove to illustrate and juxtapose in a myriad design, a variety of images, or a variety of facets of a single image.[20]

Vorticist explorations of urban views were based on unified, coherent images rather than shifting, ambiguous impressions of city life through the chaos of human perception. In Hyde Park of 1914-15 (Fig. 23), Frederick Etchells depicted his experience of a car journey through London, and concentrated on a single image, a bridge over the Serpentine. Even the figures on the bridge are shown as quite solid and stationary, well defined and clearly rendered.[21] Edward Wadsworth's A Short Flight of 1914 (Fig. 24), is another example where a synthesis of forms and a static

[20] Ibid., 26.
[21] Ibid., 326.

pictorial unity take precedence over other methods of visual expression; aspects of the plane itself, its cylinders, pistons, and other mechanical parts are merged in a precise and crisply defined way with aerial views of the ground, as seen from the plane. Where the Futurists drew on various and disparate memories, arranging them in a chaotic ordering of images that did nothing to disguise their heterogeneity, the Vorticists preferred an amalgamation of abstract themes. The synthesis of such elements would ultimately result in one cohesive image.[22]

What emerged from this focus on the synthesis of the urban environment depended on the individual artist, and was closely tied to themes of identity and conceptual self-expression. In Blast No. 1, the first publication of the Vorticists as a group, Lewis declared: "Blast presents an art of Individuals."[23] When Lewis proclaimed "BLESS ENGLAND, Industrial Island machine, pyramidal workshop, its apex at Shetland, discharging itself on the sea," he was also aligning Blast securely with the English way of life and with a brand of nationalism based on technology.[24] Blast proclaimed a supremacy for the English by way of industrial strength, stating that the "Modern World is due almost entirely to Anglo-Saxon genius...its appearance and its spirit... Machinery, trains, steam-ships, all that distinguishes externally our time, came far more from here than anywhere else." Consequently, Lewis felt that since modern life was essentially the 'invention' of the English, they "should have something profounder to say on it than anybody else."[25]

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[22] Ibid., 370.
[23] Wyndham Lewis, Blast 1 (1914; reprint Santa Rosa: Black Sparrow Press, 1989), 8.
[24] Ibid., 23-4.
[25] Ibid., 39.

As a foil, Futurism was derided by the Vorticists, and was accused of "gushing over machines," and being the "most romantic and sentimental 'moderns' to be found."[26] Futurism's belief in Bergsonian flux and the interpenetration of all matter was insidiously attacked when Lewis claimed that "Everything absent, remote, requiring projection in the veiled weakness of the mind, is sentimental."[27] Ultimately, painterly suggestiveness and attempts at capturing the elusive aspects of human perception were dismissed in "Vortex Pound": "Futurism is the disgorging spray of a vortex with no drive behind it, DISPERSAL."[28] For Lewis, intellect, analysis, strength of will and the application of structure were elements that set Vorticism apart from the Futurists. This implied that the Italians could not master their own images, and that their response to machines would necessarily be overly "reactive and impressionistic."[29]

Thus, the 'gush' over machines, as criticized by the Vorticists, and more specifically by Pound and Lewis, was tantamount to a type of 'automobilism' (as Lewis termed it) and was labeled as nothing short of "savage worship...on par with Voodooism and Gauguin-Romance." Lewis was charming, and in describing his notion of 'automobilism' used humour and wit to disparage an essentially reverential attitude towards mechanical invention by stating "There is no necessity to make a sycophantish hullabulloo about this state of affairs, or burn candles in front of your telephone apparatus or motor car..."[30] Ironically, in his own way, Lewis himself held

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[26] Ibid., 41.
[27] Ibid., 147.
[28] Ibid., 153.
[29] Lewis, Wyndham, 66.
[30] Ibid., 67, 75.

an almost zealous faith in the machine as a societal corrective as well as a model for human cognition and creative functioning. Despite this slight hint of hypocrisy on Lewis's part, there is sufficient cause to allow him his play for autonomy from the Futurists, at least in the realm of machine imagery; despite the reverential attitude the Futurists held towards technology, the paintings themselves were rarely concerned with machine forms, and certainly lacked the kind of structural and organizational precepts found in many Vorticist works. By all appearances, the Futurists wanted to humanize the machine rather than mechanize man—at least this holds true in the early stages of the movement.[31] In contrast, the Vorticists hinged their utopian programme on the notion of heightened intellectual rigour and functioning through the insertion of a mechanical efficiency into the will of mankind.

In Lewis's Vorticist Sketchbook of 1914-15 (Fig. 25 and 26), he displayed an interest in the efficacious functioning of the machine through the depiction of and interest in industrial structures.[32] Interestingly, while both Lewis and Wadsworth constructed industrial compositions using the language of machinery, the atmosphere and levels of energy were extremely disparate, emphasizing the individual nature of each Vorticist's approach to similar subject matter . In Lewis's work there is an explosive force held in check by a placement of structured formal elements; in his work Composition of 1913-14 (Fig. 27), a feeling of violence permeates the hieratic emphasis on line, as though the forms were in the process of breaking up due to some internal strife or tension.[33] Further tensions are introduced by the suggestion of

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[31] Cork, Vorticism, 326.
[32] Ibid., 338.
[33] Ibid., 126.

recognizable imagery; skyscrapers push up from the bottom, lending the frenetic arrangement of forms a representational element that multiplies its associative abilities. However, in Wadsworth's woodcuts, this urban framework seems more integrative and peaceful, hosting a contingent of mechanical forms that are held in a pacific and static balance through a compositional discipline of rationality and interlocking structures. His works are also based on machinery, but an independent referential environment is created that invites both formalistic and well as interpretive readings based on industrial themes.[34] Both Lewis and Wadsworth, in their own manner, convey the energetic and mechanical nature of urban existence. It is in their divergent approaches that the emphasis on individualism, and human will and intentionality, can be seen most clearly.

Classical detachment seems to characterize much of the work undertaken by the Vorticists, in particular the work of Lewis and Wadsworth.[35] Lewis's Workshop (1914-15; Fig. 28) illustrates this removal of the artist from his subject matter. In an analysis of the constraining yet structuring elements of industrial life, Lewis appears

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[34] Alan Robinson, Poetry, Painting and Ideas, 1885-1914 (London: Macmillan Press, 1985), 144-45.

[35] Although one cannot generalize based on one case, there is an interesting example of this classical detachment provided by the work of Wadsworth. Because it has been argued that detachment and a lack of emotional connection allows for greater powers of dispassionate analysis, it should follow that those who are most removed from the site of industry might best understand it pictorially and formally. The moment of inspiration behind Wadsworth's painting Mytholmroyd of 1914, illustrates this point. On a tour of some of Yorkshire's cities with Lewis, The latter recalled Wadsworth's reaction to the sight of the town: "He stopped the car and we gazed down into its blackened labyrinth. I could see he was proud of it. 'It's like hell, isn't it?' he said enthusiastically." Cork asserts that because Wadsworth had grown up in a wealthy family, spending his childhood a "safe distance from this harsh environment" he was able to savour its "savagery without wondering about the plight of the workers who had to live there." Rather than immerse oneself into the heart of the city, attempting to capture the experience of the urban environment *as it might be felt by any city dweller*, Wadsworth strove to remove himself from such a point of reference, preferring instead to synthesize urban life and mechanical forces into abstract equations of line and mass that implied disinterested powers of observation. See Cork, Vorticism, 352-53.

to be looking from the outside in. Workshop serves as a metaphor for the city where just as objects are built in a workshop, modern life is constructed in the 'urban' workshop. The suggestion has been made that the network of solid lines ranging across the surface of the painting resembles prison bars. Further, their pattern and intent seems to outline the capture and constriction of the inhabitants of an urban environment.[36] Yet the painting also has an air of potential and excitement. Did Lewis view himself as contained within the masses depicted in his work? This seems unlikely; one can only conclude that he delightedly placed himself outside the urban ferment. It is tempting to ask the question if perhaps some of his enthusiasm may stem from his sense of inviolability in the face of urban change. Knowledge is power, and Lewis may have felt himself exempt from the compartmentalizing forces of the city which seemed to wreak havoc on the mindless 'masses' of the city.

The concern with individuality and the agency behind human will also carried the suggestion that certain individuals were in a better position than others to lead, direct, and construct future works/cultural material. Vorticist writings, particularly those by Lewis, suggest that he carried a streak of elitism wide enough with which to support any and every philosophical enterprise that might set him apart and lend him ascendancy. In the first issue of Blast he declared "WE NEED THE UNCONSCIOUSNESS OF HUMANITY—their stupidity, animalism and dreams."[37] Etchells typified Lewis's need for supremacy by describing him as "an uncomfortable man to be with. He was a tremendous bully who wanted to be top dog all the

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[36] Ibid., 342-44.
[37] Lewis, Blast 1, 7.

time..."[38] Lewis set out to occupy the heroic role of the great artist with genuine zeal, and he was surrounded by other individuals who shared the sentiment—most notably, Ezra Pound who promoted the superior importance of the artist by saying "Modern civilisation has bred a race with brains like those of rabbits and we who are the heirs of the witch-doctor and the voodoo, we artists who have been no long the despised are about to take over control..."[39]

Lewis's need to set himself apart from 'humanity' can be inferred from his violent reaction against the audience participation encouraged by Futurism. Lewis felt that the "dithyrambic spectator" was the "principal aesthetic disease" of his time, a threatening "invasion of the sacrosanct artistic stage, or dance, by the amateur or spectator."[40] Lewis's illustrations for Timons of Athens (1912-13; Fig. 29) also support this conclusion, and the play itself suited Lewis's personality. Timon, in rejecting the company of those around him, ends up alone; an isolated individual cursing the world from which he has withdrawn. Ezra Pound, referring to both the play and Lewis's designs, commented that their shared thematic involved "the fury of intelligence baffled and shut in by circumjacent stupidity."[41]

I would like to argue that in Lewis's 1914-15 painting The Crowd (Fig. 30), two important themes can be seen that clarify certain questions surrounding the full

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[38] Cork, Vorticism, 110.
[39] Ezra Pound, Ezra Pound and the Visual Arts, ed. Harriet Zinnes. (New York: New Directions Books, 1980), 182.
[40] Geoffrey Wagner, "Wyndham Lewis and the Vorticist Aesthetic," Journal of Aesthetics & Art Criticism XIII no1 (1954): 3.
[41] Cork, "Submerged," 95.

significance of mechanical imagery within Vorticism. One theme, dealing with the individual, emerges from the ascendancy of the modernist artist as an exemplary symbol of self-inflicted social ostracism; the other involves the structuring power of abstraction as a tool for conceptual construction and enforcement. The Crowd and Timon of Athens actually have much in common, and are related thematically in complicated ways.[42] These, as well as the full complexity of Lewis' The Crowd can be better understood if we refer to the theories of Le Bon, who explored the implications of 'the crowd' as a growing social force at the beginning of the twentieth century.

Le Bon's synopsis of the crowd delineates two opposing modes of social functioning, that of the individual, and that of the collective. First he establishes the forceful mode of action inherent in crowd dynamics. He states: "Little adapted to reasoning, crowds... are quick to act. As the result of their present organisation their strength has become immense." According to Le Bon, the force of the crowd, and its signal of new forms of power within the masses "marks one of the last stages of Western civilisation, a complete return to those periods of confused anarchy which seem always destined to precede the birth of every new society."[43] Excitement over the beginnings of a new society must be tempered with the potentially destructive force of the crowd.

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[42] Richard Humphreys, "Wyndham Lewis: Art and War - London, Imperial War Museum," Exhibition review, Burlington Magazine 134 (Nov. 1992): 739. In Timon of Athens, the "dangers of naïve misanthropy, leading to an impotent private hell" becomes painfully ironic if we regard Lewis' biographical material and personal reputation.

[43] Le Bon, 16-17.

Individualism is the sacrificial lamb in this rise to power. Le Bon, in establishing why individual strains within personality are negated in favour of the collective says: "Men the most unlike in the matter of their intelligence possess instincts, passions, and feelings that are very similar." He goes as far as claiming that "In the case of everything that belongs to the realm of sentiment—religion, politics, morality, the affections and antipathies, etc.—the most eminent men seldom surpass the standard of the most ordinary individuals." Because in any crowd it is the shared traits that must bind and form an impetus to action, it is the 'lesser' faculties of humanity which most often determine the course a crowd will take. "In the collective mind the intellectual aptitudes of the individuals, and in consequence their individuality, are weakened. The heterogeneous is swamped by the homogeneous, and the unconscious qualities obtain the upper hand."[44]

For this reason, the intellectual capacity of any crowd is diminished, and the emotional and instinctual impulses are augmented. Le Bon is careful to point out that this does not always mean the crowd will behave in a violent or destructive way, only that it becomes a force that is open to propositions and suggestion. With moral imperatives, the crowd could conceivably carry out benevolent courses of action. Le Bon's importance for Lewis's work lies in the understanding that the individual would lose all sense of autonomy if subsumed by the crowd, instead, becoming an "automaton who has ceased to be guided by his will."[45] It is the intellectual prowess

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[44] Ibid., 28-9.
[45] Ibid., 32.

and intentional will of the individual then, that renders the machine more than mere automaton.

Lewis himself, in taking up a protective stance towards individuality, states that "in certain periods, 'the people' are not far preferable, individually, to their masters."[46] It is individuality then, which must be preserved in the artist at all costs. In the August 15, 1914 edition of The Egoist, Ezra Pound proclaimed that "The vorticist movement is a movement of individuals, for individuals, for the protection of individuality. If there is such a process as evolution it is closely associated with the differentiation of species. Humanity has been interesting, more interesting than the rest of the animal kingdom because the individual has been more easily discernible from the herd."[47]

In Lewis's The Crowd, rigid and angular urban structures surround and contain small figures scattered throughout the composition. These small forms, though resembling mechanized automatons, appear to be engaged in various activities, some attempting to leave the outer frame of the picture, others, in the distance scaling various structures and waving revolutionary flags. The humans in this composition can be seen as minor players in the hierarchical structure of urban existence. Lewis seems dispassionate and cold, removed from the angst of these escaping figures who are striving to break out of the bounds of the composition, and who, at the same time, are far from being the masters of their surroundings.[48]

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[46] Lewis, Wyndham, 67.
[47] Pound, Ezra, 190.
[48] Cork, Vorticism, 346.

Therefore, the schematic structures in The Crowd can be viewed as not only embodying forces in an urban framework which may compartmentalize and restrict human freedom, but as an allegory for the necessity to control the unconscious and rash behavior of the kind of crowd suggested in Le Bon's analysis. The artist becomes the symbol of intellectual superiority, knowingly observing the unconscious behavior of the masses. The use of mechanical imagery becomes a metonymic extension of the artist's potency. With this abstracted and highly structured conception of an urban environment, Lewis seems to be saying that the folly of humanity must be controlled and contained by the power and intellectual clarity of gifted individuals within society.[49] This proposal would support not only Lewis's need for recognition and autonomy, but would satisfy the burning need to create a purposeful mechanism for the artist's *will*.

This is further supported by Peters Corbett when he determines that The Crowd "presents the translation of the modern world at its most transgressive and disturbing into the ordered and calming autonomy of art."[50] The artist's canvas is a place of construction; the development of new pictorial languages with which to describe modern life can also imply the development of schemes with which to *create* modern life. The Vorticists were partially correct when they dismissed the Futurists' reception of the modern world around them as 'passive' and impressionistic; if the

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[49] Cork, Vorticism, 349. In Blast 2, Lewis published the first part of "The Crowd Master," where the crowd is defined as "the first mobilisation of a country." The story conflates "mass emotion" with "madness"—a deadly combination that encourages war. There is "distilled the atmosphere of a death-wish; and if its sombre mood seems almost to approach the timbre of an elegy, this was fully commensurate with Lewis's grim realization that war threatened the very survival of the movement he was trying to develop."

[50] David Peters Corbett, The Modernity of English Art 1914-30 (Manchester: Manchester University Press, 1997), 36.

measurement is based on a notion of fabrication, the functional and dynamic inner workings of the machine must be translated into autonomous forms via the intellectual rigour of the artist. The invention of living mechanical structures through art was central for the Vorticists and led to an inexorable progression towards the total and complete eradication of biological imperatives in the process of *creating the modern*.

In 1913, Léger suggested that the "modern conception is not simply a passing abstraction, valid only for a few initiates; it is the total expression of a new generation whose needs it shares and whose aspirations it answers."[51] Yet Léger also claimed that "in order to find in this break with time-honored habits a basis for a new pictorial harmony and a plastic means of dealing with life and movement, there must be an artistic sensibility far in advance of the normal vision of the crowd."[52] Again, this ambivalence between collective change and individual agency is felt; a relationship that could resemble in some ways, the aesthetic divisions that have always placed art and life on opposite poles, particularly within Vorticism.[53]

In 1932, Lewis himself provided a curious resolution to this enigmatic question, albeit several years after the fact. Perhaps it took until that time to solve the riddle to his own satisfaction. In his article "The Artist as Crowd" he states:

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[51] Fernand Léger, "The Origins of Painting and its Representational Value" 1913, Functions of Painting (1965), trans. Alexandra Anderson, ed. Edward F. Fry. (New York: The Viking Press, 1973), 10.

[52] Ibid., "Contemporary Achievements in Painting" 1914, 12

[53] Ibid., "Affirmations: Jacob Epstein," 12

"Our respect is not for the subject-matter, but for the creative power of the artist; for that which he is capable of adding to his subject from himself; or, in fact, his capability to dispense with external subjects altogether, to create from himself or from elements. We hold that life has its own satisfactions, and that after a man has lived life up to the hilt, he should still have sufficient energy

> "the artist" is somewhat bound up with "the individual," seeing, as I have remarked, how few artists...there are, and how it seems that really...the artist, whose chief virtue must be his egotism, is bound to appear as one of the capital offenders against the principles of a Commune—at first sight.
> .....
> ...such artists as Shakespeare or Dickens are very little *individuals* at all—they are, as a matter of fact, a very great and numerous crowd. Those universal creators are in the truest sense mass-artists....The stamp of what we choose to call "genius"...is precisely that the individual has externalized himself, has become purely an instrument, almost a common-property, in fact.[54]

Was this Lewis's attempt to come to terms with his own elitism in favour of an altruistic gesture towards universal expression? Was he able to reconcile both his anti-public stance, or cult of the individual genius, removed and detached from the phenomena which he studies, with the notion of art into life? If it is the role of the genius artist to express the new realities of his age, than perhaps in the "Vortex" Lewis sought out mechanical forces as a sort of catalyst. In this context, the machine can be viewed within Vorticism as an impervious structuring system for artistic notation, a system that might surpass mere biological expression and draw human expression into a transcendent mechanical realm, capable of expressing the changing function of art in the twentieth century.

In opposition to Vorticism's emphasis on translating the world's chaos into order through the central organizing mechanism of the vortex, Dada appeared to embrace the irrationality of modern existence. In fact, the lack of coherence in the work of the Dadaists was a carefully thought out strategy for dealing with modernity, one that took into account the impact of technology on the human psyche.

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to go on to the satisfactions of art, which are different from the satisfactions of life. I will not say loftily: they are beyond it. The satisfactions of art differ from the satisfactions of life..."

[54] Wyndham Lewis, "The Artist as Crowd," Creatures of Habit and Creatures of Change: Essays on Art, Literature and Society 1914-1956, ed. Paul Edwards, (Santa Rosa: Black Sparrow Press, 1989), 173.

Photomontage, the use of photography in tandem with printing and collage techniques, was a method that not only embraced aspects of emerging technologies, but did so in a self-conscious way that served a critical function. In addition, it served a constructive function that extended out of machine technology, in its composite nature, it can be viewed as a reflection of the complex and multifaceted aspect of machine construction.

Within the literature, it has been standard to equate the technique of photomontage with an emerging modernism at the turn of the century.[55] Technology plays a complex role in new pictorial languages designed to explore "the modern." Within American Modernism, Precisionism promoted the camera as an instrument that might reform and restructure perception; technology from this perspective is not a place of obstruction between the individual and reality, rather, the machine can be viewed as deforming reality in a creative way. It transforms reality, acting as a "screen" or "filter" through which modernism might be understood.[56] For Moholy-Nagy, the camera was invaluable in terms of educating the eye to deal with modern forms and concepts surrounding technology, ultimately leading to a new form of vision and visuality. He stated that the camera, with its ability "to complete or supplement our optical instrument, the eye' would help us to disengage ourselves from traditional perceptual habits."[57]

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[55] Barbara Zabel, "The Machine and New York Dada," Making Mischief: Dada Invades New York, ed. Francis M. Naumann and Beth Venn (New York: Whitney Museum of American Art, 1996), 281.

[56] Miles Orvell, After the Machine: Visual Arts and the Erasing of Cultural Boundaries. Jackson: University Press of Mississippi, 1995), 9-10.

[57] Maholy-Nagy quoted in Dawn Ades, Photomontage (London: Thames and Hudson, 1976), 148.

Equally important, photomontage maintained an allegorical function; its usefulness as a multi-layered tool for understanding the complex issues surrounding modernism allowed Dada to explore uncharted territory in the visual arts. In contrast to a symbolic reading of an image, allegorical readings introduce contradiction and pluralism of meaning into a work. Craig Owens has stated that "In allegorical structure, then, one text is *read through* another, however fragmentary, intermittent, or chaotic their relationship may be."[58]

For Dada, photomontage was not a method of charting or documenting stable creative reflections of one's environment. Instead, Dada's use of photomontage can be viewed as an ironic method of strategizing uncertainty. By embracing the uncertainty and complexity of modern experience, and allowing this to play itself out in their work, the Dadaists were engaging with their environment in a way that was both positive and critical, without being reductive. Stephen C. Foster, in his analysis of Dada, stated that "no matter what the specific position taken, Dada was always about how one could or could not transact living and history; that is, how one could or could not make workable contracts with it..."[59] This is particularly true of the work of Hannah Höch who, in her attempt to deal with the complex nature of an emerging feminism, simultaneously reflected, constructed, and *transacted* images of the New Woman through the allegorical method of montage.[60]

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[58] Craig Owens quoted in Maud Lavin, Cut with the Kitchen Knife: The Weimar Photomontages of Hannah Höch (New Haven: Yale University Press, 1993), 24.
[59] Stephen C Foster, "Dada Criticism, Anti-Criticism and A Criticism," Dada Spectrum: The Dialectics of Revolt, ed. Stepen C. Foster and Rudolf E Kuenzli (Madison & Iowa City: Coda Press, Inc. & the University of Iowa, 1979) 35-6.
[60] Lavin, 4.

The way in which Dada conducted their collage work suggests that they were functioning on a critical level that superseded mere aesthetic positioning, whether it be under the rubric of construction or mimesis. Their work can therefore be seen as a type of cultural analysis verging on metadiscourse where not only culture, but the artistic approaches themselves to that same cultural material, comes under scrutiny. In many ways, their chief target appeared to be traditional Western and Cartesian modes of thinking which involved delimitation and the foreclosure of artistic possibility.[61] In addition, the exactitude of photography, rendered incoherent through montage and fragmentation, might indicate the triumph of the irrational over reductive approaches to representation and reality.

The role of the machine in this metadiscourse is as complex and ambiguous as it is lucrative and rich with meaning/possibility. Perhaps the best image with the greatest potential for exploring these complexities is the concept of the cyborg or mechanical figure. The mechanized individual in Dada holds an ambiguous yet fascinating position as both the subject and the object of an emerging modern vision based on the machine and technology.[62] As object, the cyborg functions to impress upon the viewer the various ways in which technology impacts on the human psyche and/or body. As subject, the mechanized individual is allotted new abilities that render it aptly suited to mental survival in a growing mechanistic environment. Raoul

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[61] Erickson John D., "The Cultural Politics of Dada," Dada: The Coordinates of Cultural Politics ed. Stephen C. Foster (New York: G.K. Hall & Co., 1996), 13.
[62] Matthew Biro, "The New Man as Cyborg: Figures of Technology in Weimar Visual Culture," New German Critique 62 (Spring-Summer 1994): 73.

Hausmann's 1920 portrait Tatlin at Home (Fig. 31) illustrates this point well. Viewed by many Dadaists as the embodiment of the new machine-age artist, Vladimir Tatlin's image in this work, alongside fragments, signs, and symbols associated with him, illustrates one of the goals of the Dada artist/producer: the material exploration of the world, and the constructive juxtaposition of these elements to further investigate their significance.[63] With all manner of mechanical parts emerging from his head, this portrait makes clear that man is both a construction of his mechanistic environment as well as its producer.

Tatlin at Home also implies that the merging of man and machine may in fact resolve itself through the very absurdity of such a coupling. As discussed in the first chapter of this thesis, Hausmann's concept of Creative Indifference as a "plane for the appearance of conflicts" allowed for the productive co-existence of contradictory or irreconcilable ideas and/or images. In Tatlin at Home, as well as in Mechanical Head (1921; Fig. 32), a collection of machine fragments extends in an almost ridiculous fashion, out of the bodies of the depicted subjects. Humour and wit aside, the ongoing conflation in our century of the human brain and the machine indicates that more and more, human thought processes are being considered in an increasingly mechanistic light. Taken into account, the absurd nature of Hausmann's mechanized heads points out this relationship as one that is both arbitrary as well as constructed; the center of consciousness can be viewed as an almost empty receptacle that develops itself around such cultural fragments of technology.[64] The potential inherent

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[63] Ibid, 80-1.
[64] Timothy Benson, "Mysticism, Materialism, and the Machine in Berlin Dada," Art Journal 46.1 (Spring 1987): 52.

in such imagery is further enhanced by its open-ended nature, and Hausmann's belief in Creative Indifference facilitates the collage technique that lies behind such absurd yet intriguing representations of the human mind. Ultimately, Creative Indifference can be viewed as a type of cognition that is based on the irrational, and is therefore expansive rather than reductive.

In contrast to this acceptance of the irrational, photomontage and collage techniques have traditionally been viewed as the embodiment of a new machine-age art; for some this comes with connotations of order, efficiency, and collective function. Likewise, for others, collage has been interpreted as antithetical to romanticism and organic approaches to art-making.[65] I would argue that Dada functions outside this type of framework. The argument can be made that with some Dada artists, a romantic organicity in fact characterizes their work; this underscores the fact that Dada producers were extremely individualistic in their approach, and that as a general rule, no rule can be stated unequivocally regarding Dada as a movement.

The work of Kurt Schwitters is a fundamental example of this organic approach to collage, one that appears contradictory if one maintains a rigid division between works which are mechanical in structure or content, and those which embrace the organic and the intuitive. Dada undertook the project of disrupting such reductive approaches to art making, and Schwitters tellingly showed a fascination

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[65] This argument has arisen from the notion that works that are comprised of found materials indicates a changed approach to the material world around us, a new sense of time and space, and the loss of a "totalizing tradition." Ultimately, this understanding of collage and photomontage has come out of the idea that changes in industry, mass media, and culture due to the Industrial Revolution, have forever altered our methods of art-production in a way that likens it to industrial production. See Dorothea Dietrich, "Merz and the Longing for Wholeness," Dada: Cologne/Hanover, ed. Stephen C. Foster and Charlotte Stokes (New York: G.K. Hall & Co., 1997), 109.

with both the organic as well as the mechanical. He illustrated his interest in machinery when he recounted a work position he had held:

> From that time on [June 1917] until the beginning of the revolution, I worked at the Wɳlfel iron works in the next best profession as machine draftsman. There I gained my love for the wheel and recognized machines as the abstraction of the human mind. [66]

The fact that he drew an equivalency between machines and the human mind indicates that in his approach to collage, he included notions of a different type of cognition based on the machine.

Interestingly, in the work of Schwitters, this love of machinery appears subsumed by an almost romantic affirmation of human creativity and the organic. In his work Construction for noble ladies (*Konstruktion für edle Frauen*) of 1919 (Fig. 33), he includes a variety of found materials, including several mechanical parts, and a small passenger car of a toy train. In a passage talking about the creation of this work, Schwitters affirms a certain amount of mythology surrounding notions of creativity and artistic generativity. He describes an unlikely narrative of how he came across the components for his picture, and the journey that led him to the objects that were meant to find a place in his work. Dorothea Dietrich, in her article entitled "Merz and the Longing for Wholeness," points to this narrative aspect of the work that ties the work to maker, to the story of its creation, and to a tradition of craft, and asserts that it is an affirmation of human power over the machine.[67]

What makes his work so intriguing from this perspective, is that while setting out in typical Dada fashion to destroy clear meaning, he underwrites the work with

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[66] Schwitters quoted in Dietrich, 110.

[67] Ibid., 113. Claiming that the narrative functions to counteract the disruptive effects of fragmentation inherent in his collage technique, Dietrich further underlines this by drawing

his own sense of wholeness and spirituality, which reveals his belief in the importance of human creativity.[68] Further, his use of the machine components, rather than suggesting themes of mechanization and/or alienation, indicates that he includes the machine as an integral part of the human condition, and that for him, it can be harmoniously integrated into an *organic* composition. The fact that the machine parts in this work, the toy train and the wheels, are broken, signifies for Dietrich that Schwitters is affirming an organic life-force over the forces of the machine, and that together with the myth of its creation, the fragmentation of modern life finds its resolution through its immersion in nature.[69]

Schwitters falls in line with the theoretical stance of such art theorists as Adolf Behne, who in his text The Return of Art (*Die Wiederkehr der Kunst*) of 1919, felt that art was the only possible way to transform society, and that experience and intuition must liberate themselves from rationalist thought in order to enact the creative experience. Technology within this framework was viewed as threatening. This debate between a need for wholeness and human experience despite the disruptive influence of technology, had found its voice in many sources: Nietzsche, and the sociologist Ferdinand Tönnies, in his text Community and Society (*Gemeinschaft und Gesellschaft*) of 1887. Here, a contrast is outlined between the authentic, organic harmony of community and the materialistic fragmentation of urban culture.[70]

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attention to the fact that he applied a thin layer of pigment over all the components of his picture in order to tie them together and lend them an interconnectedness.

[68] Ibid., 113.

[69] Ibid., 114.

[70] Ibid., 115-16.

Schwitters's use of organicism in his work, may in fact only represent the "Longing for Wholeness" rather than the achievement of it. His role as a Dada artist, in combination with the ambiguous and intensely personal nature of his work, indicates the triumph and artistic potential of the irrational over any complete or totatlizing romantic narrative. His approach to art-making in line with many other Dada artists, placed importance on the notion of *Erlebnis* (experience); through the process of decontextualization and dissociation, objects in the *Merz* vocabulary are left open to multiple readings.[71] It is the active participation of the viewer which reconstructs the meaning of the work, and perhaps this is the wholeness to which Dietrich refers.

I would argue that it is the ambiguous inclusion of the mechanical elements in the collage work of Schwitters's, Höch and Hausmann, which fulfill their respective Dada destinies as ongoing question marks on the role of the machine in human cognition. In her text Photomontage, Dawn Ades writes about the potential of photography in tandem with collage techniques:

> Before Dada and Surrealism began to pursue 'the systematic derangement of the senses', as Rimbaud called it, by pictorial as well as other means, the fascinating paradox of being able to distort reality with the medium which was its truest mirror had often been explored in illustrated magazines and above all in the medium of the popular postcard. [72]

Is this not what the human brain does with memories? Collage technique emphasizes the discontinuities which continually surround us in our "modern" visual environment. Can we not view collage and photomontage as a possible reflection of the type of image-making that goes on cognitively within the experiencing subject?

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[71] Ibid., 120-21.
[72] Ades, 107.

By utilizing the highly mimetic and illusionary nature of photographic material in a way that mirrors our own chaotic vision/perception, photomontage was able to express in a completely novel way, the experience of modern cognition in the first part of this century.

In conclusion, by opening imagery up to endless possibilities in terms of meaning and significance, Dada can be viewed as creatively unraveling the simultaneous nature of modern experience. However, in opposition to Vorticism's attempt to order the chaos of modern life through their central mechanism, the vortex, Dada allows for the irrationality of modern life and indeed the irrationality of the human subject to reveal itself. The fact that Dada can be seen to counter the rationalism of Vorticism, while still displaying an intense interest in the machine is as intriguing as it is perplexing. Perhaps it reflects the fact that what we make of the machine ultimately reflects our own vision and purpose; in essence, this effectively renders the machine an organic entity within the totality of human experience. In its celebration of chance and uncertainty, and in its employment of ironic distance, Dada art production may be the best and last defense of the individual in the face of technological change.

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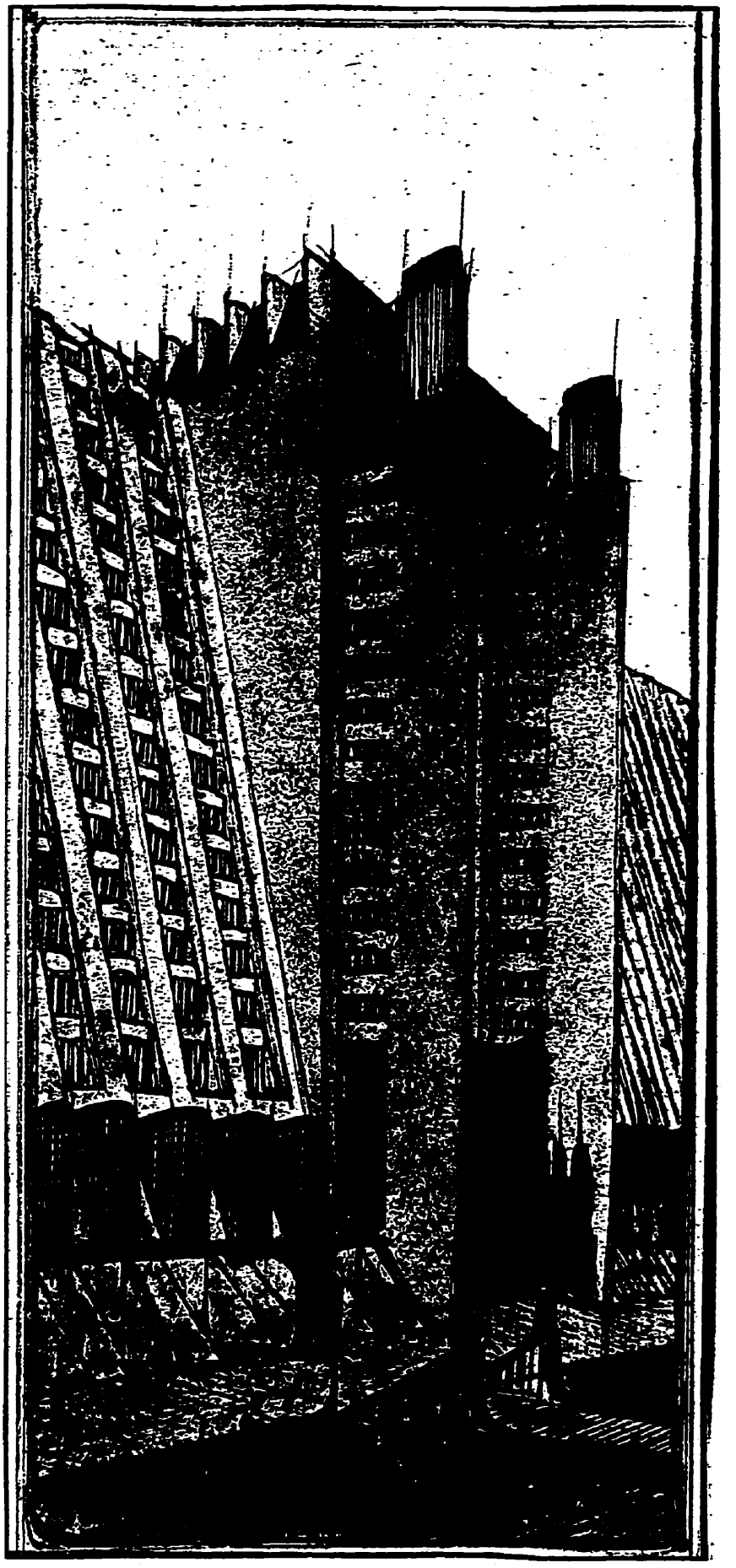

Fig. 1 Antonio Sant' Elia, The New City: Terraced Building Over Two-Level Street (1914)

Fig. 2 Giacomo Balla, Abstract Speed (1913)

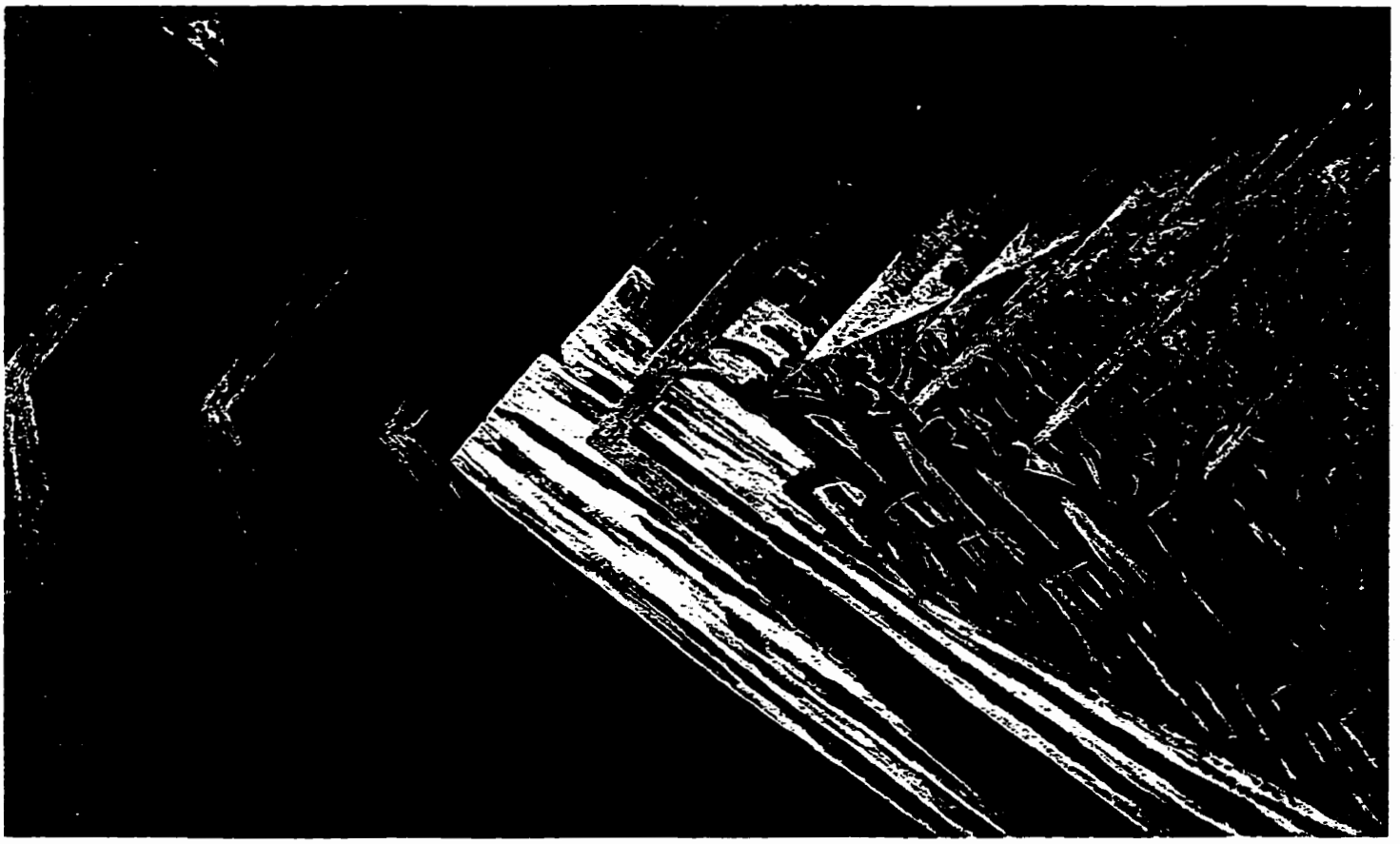

Fig. 3 Luigi Russolo, Rebellion (1911-12)

Fig. 4 Umberto Boccioni, The Forces of the Street (1911)

Fig. 5 Umberto Boccioni, The City Rises (1910)

Fig. 6 a) Umberto Boccioni, States of Mind: The Farewells (1911)

Fig. 6 b) Umberto Boccioni, States of Mind: Those Who Go (1911)

Fig. 6 c) Umberto Boccioni, States of Mind: Those Who Stay (1911)

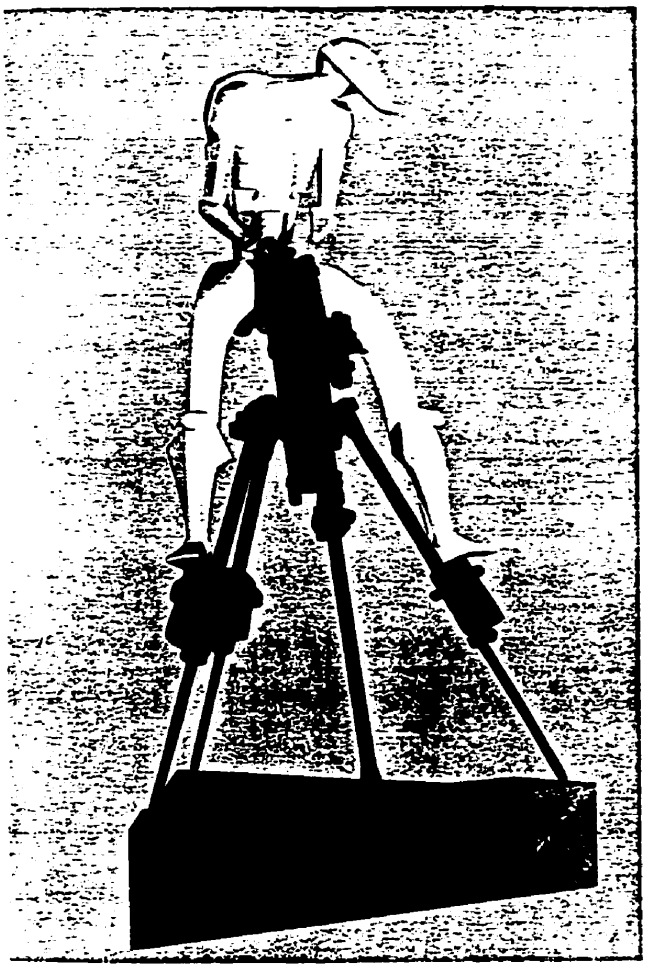

Fig. 7 a) Jacob Epstein, The Rock Drill
(1913-16; 1974 Reconstruction of original)

Fig. 7 b) Jacob Epstein, The Rock Drill (1913-16, Bronze Torso from the original)

Fig. 8 Man Ray, Danger/Dancer (1920)

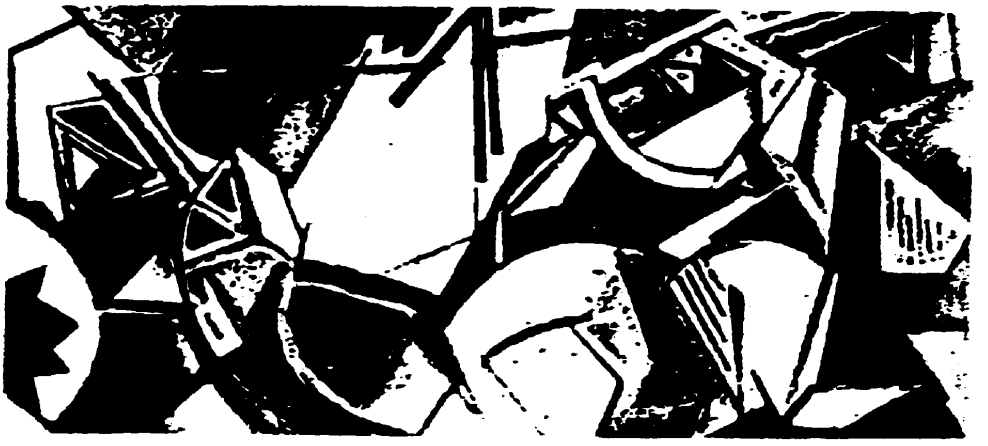

Fig. 9 Wyndham Lewis, The Dancing Ladies (1913-14)

Fig. 10 Umberto Boccioni,
Unique Forms of Continuity in Space (1913)

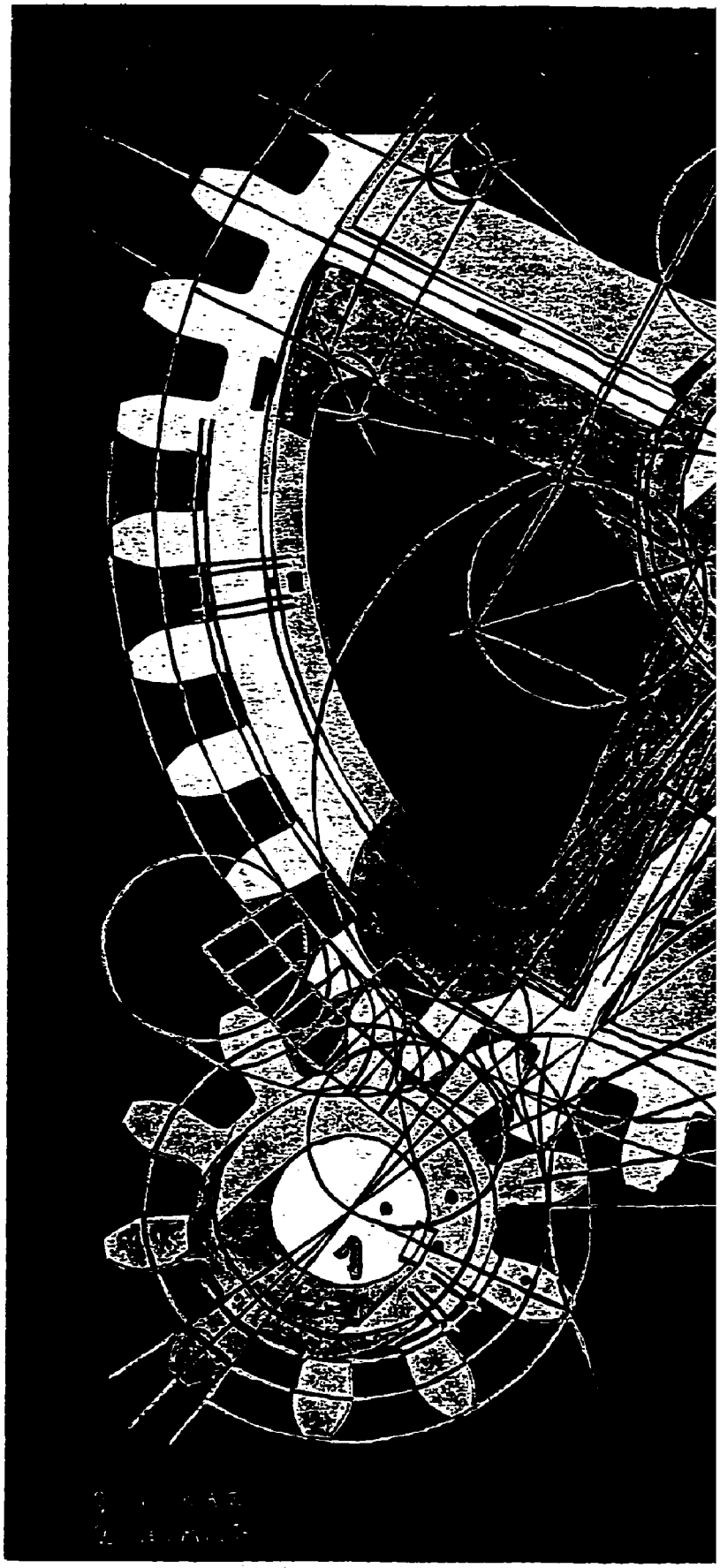

Fig. 11 Francis Picabia, Machine Turn Quickly

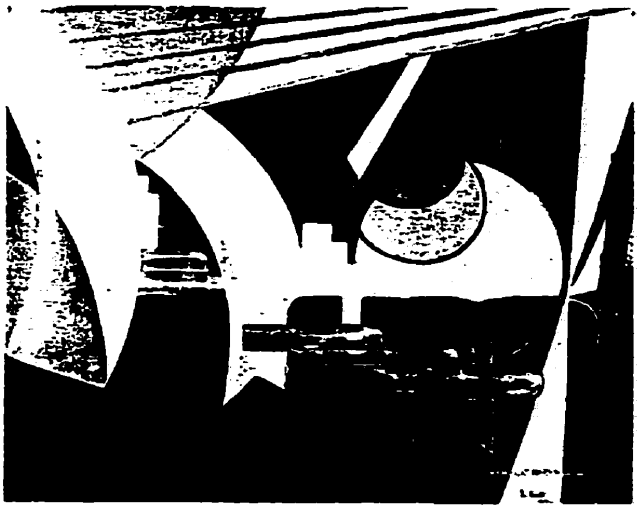

Fig. 12 Jean Crotti
The Mechanical Forces of Love
in Movement (1916)

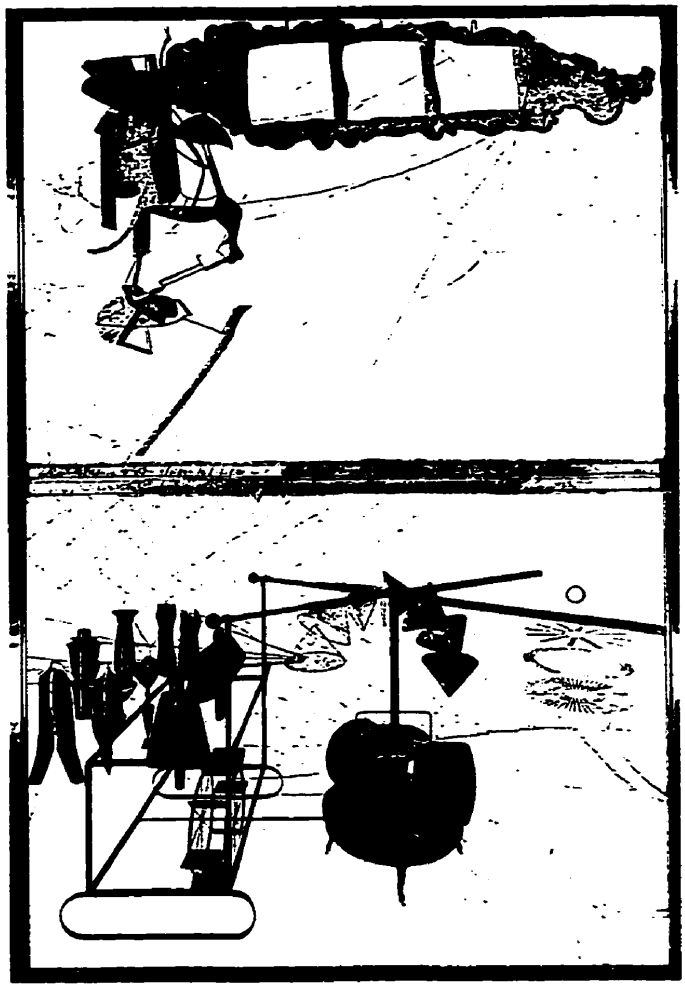

Fig. 13 Marcel Duchamp,
The Bride Stripped Bare by her Bachelors, Even (1915-23)

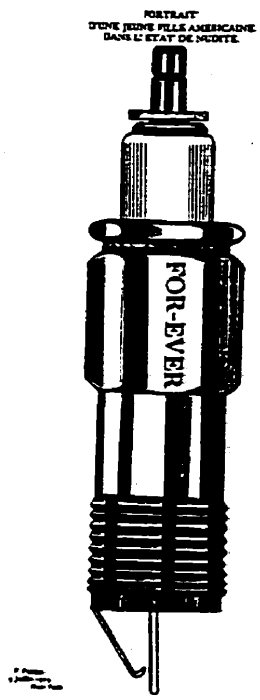

Fig. 14 Francis Picabia
Portrait of a Young American Girl
in a State of Nudity (1915)

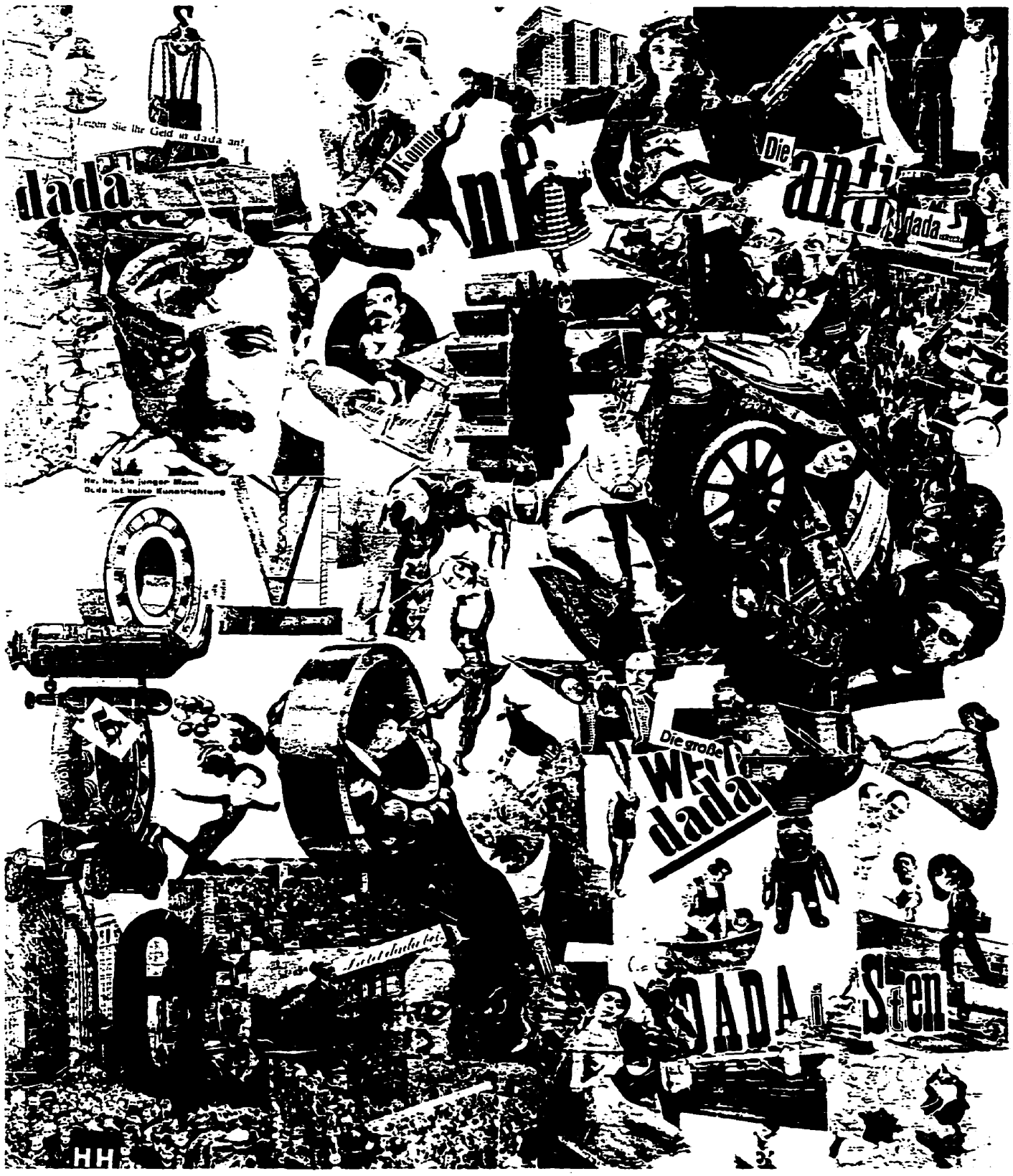

Fig. 15 Hannah Höch, Cut with the Kitchen Knife Dada through the Last Weimar Beer Belly Cultural Epoch of Germany (1919-20)

Fig. 16 Hannah Höch
English Female Dancer (1928)

Fig. 17 Hannah Höch,
Russian Female Dancer (1928)

Fig. 18 Hannah Höch, Equilibrium (1925)

Fig. 19 Hannah Höch, The Beautiful Girl (1919-20)

Fig. 20 Wyndham Lewis, The Celibate (1909-)

Fig. 21 Wyndham Lewis. The Vorticist (1912)

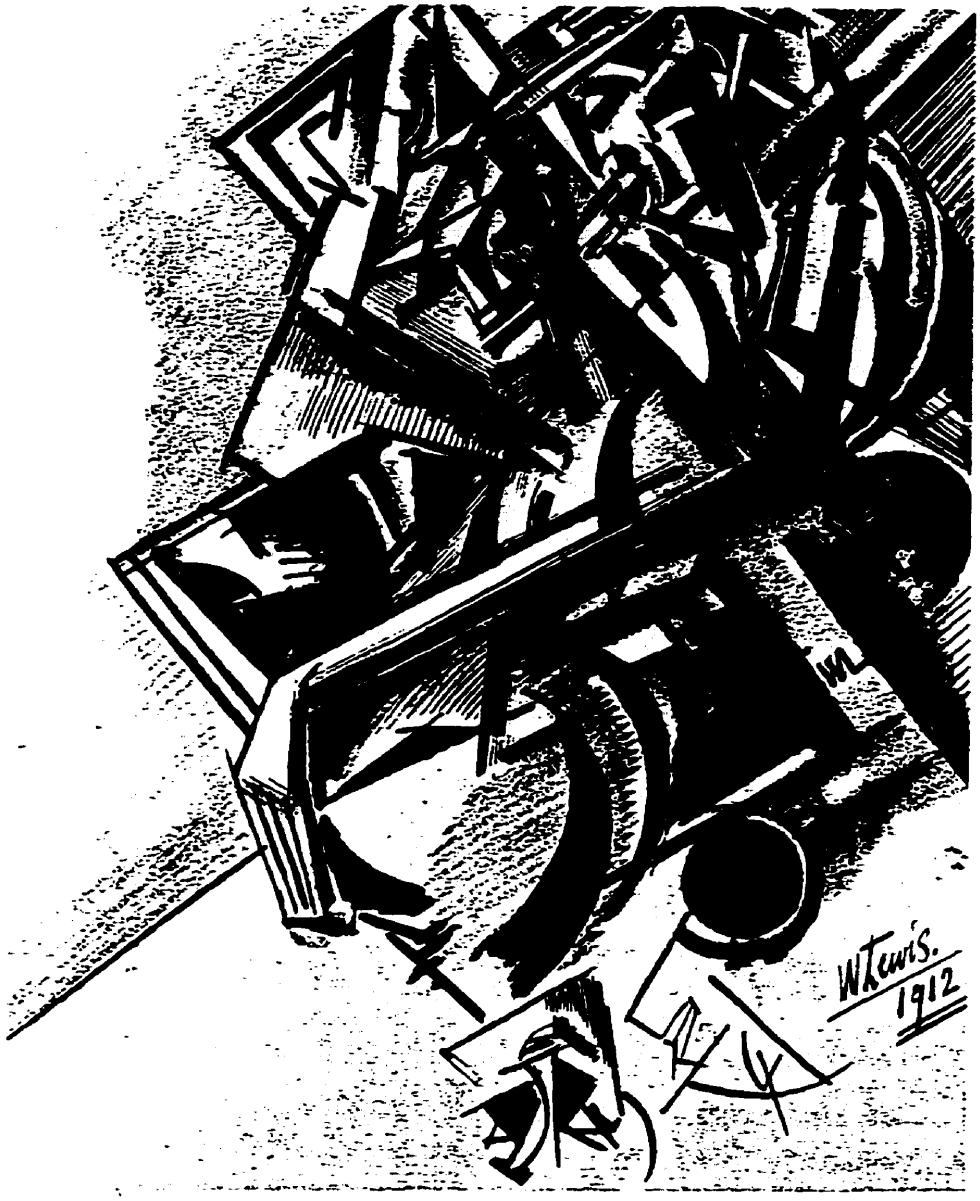

Fig. 22 Wyndham Lewis, The Courtesan (1912)

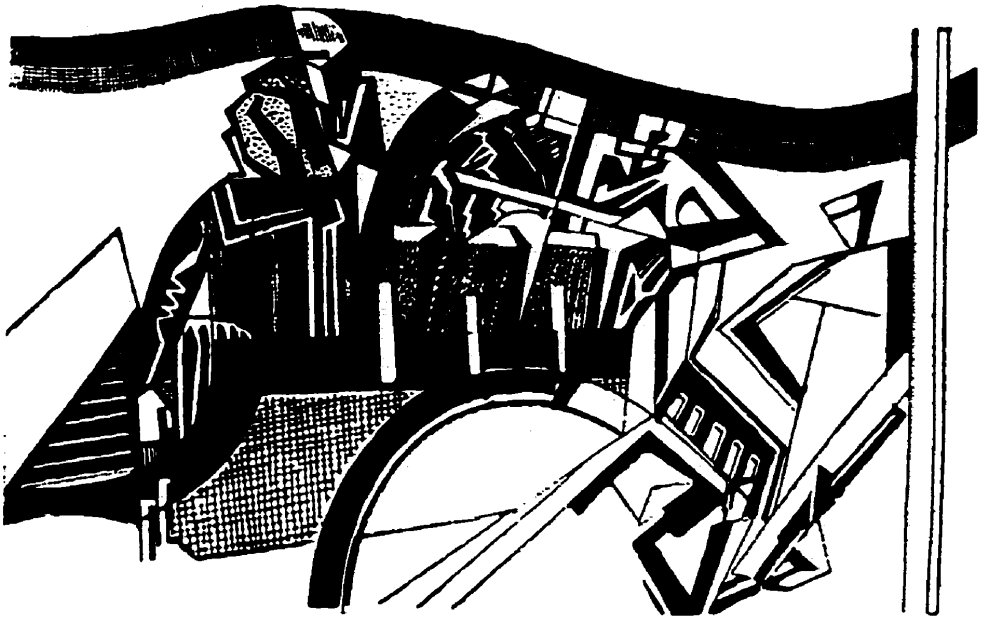

Fig. 23 Frederick Etchells, Hyde Park (1914-15)

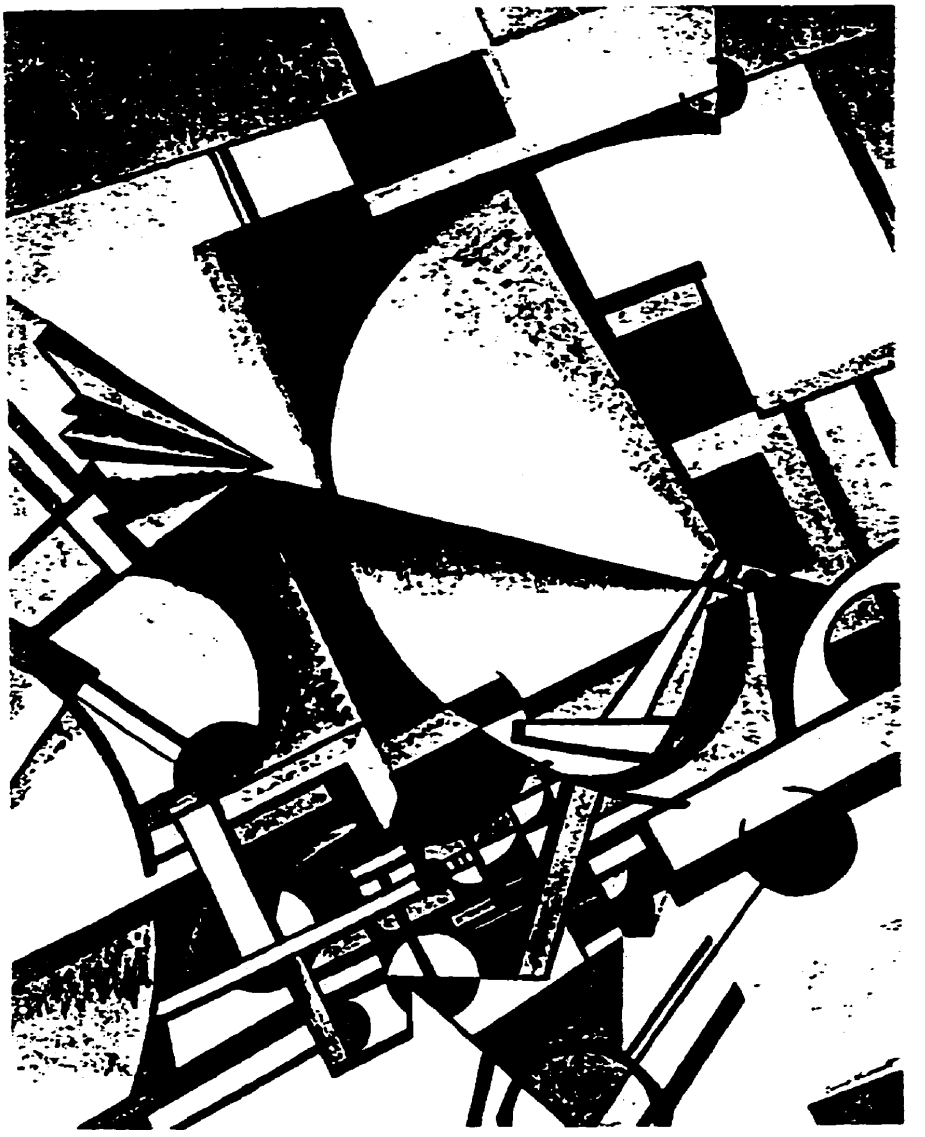

Fig. 24 Edward Wadsworth, A Short Flight (1914)

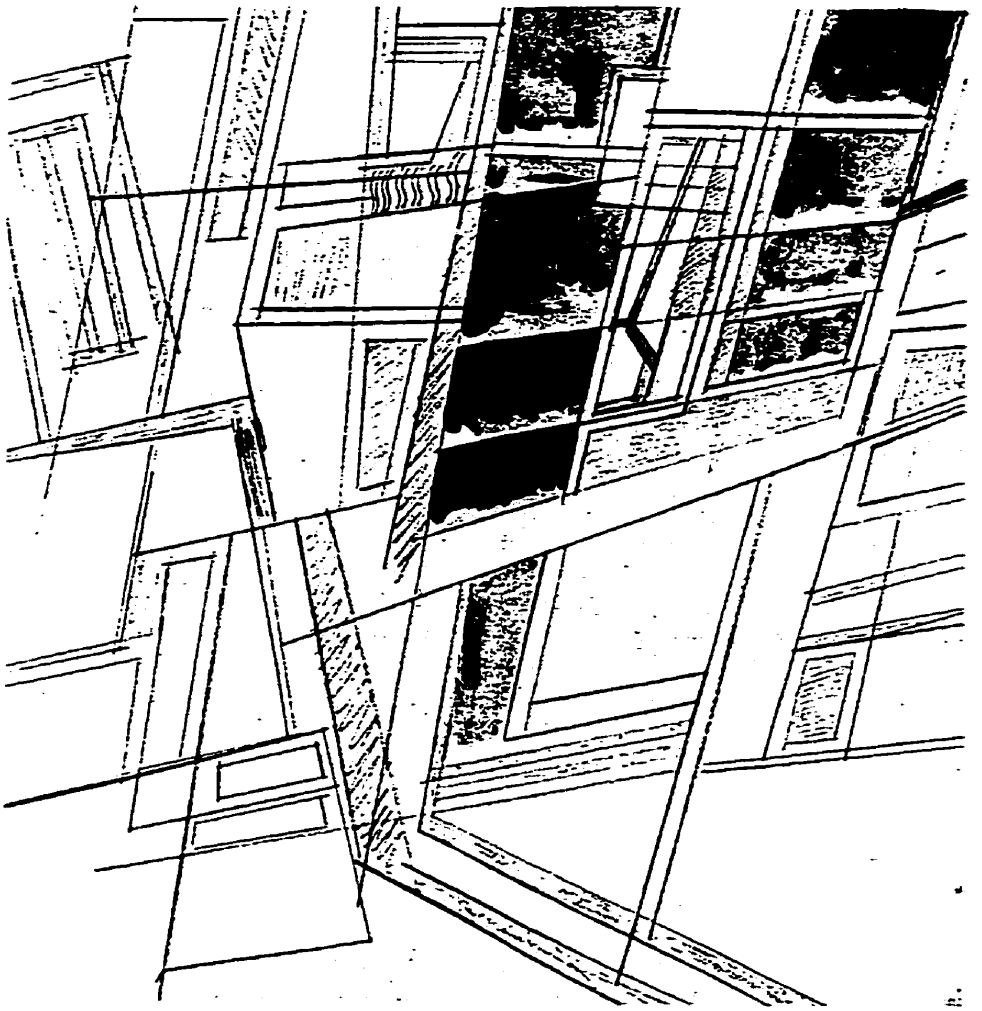

Fig. 25 Wyndham Lewis, Composition III
(*'Vorticist Sketchbook'* 1914-15)

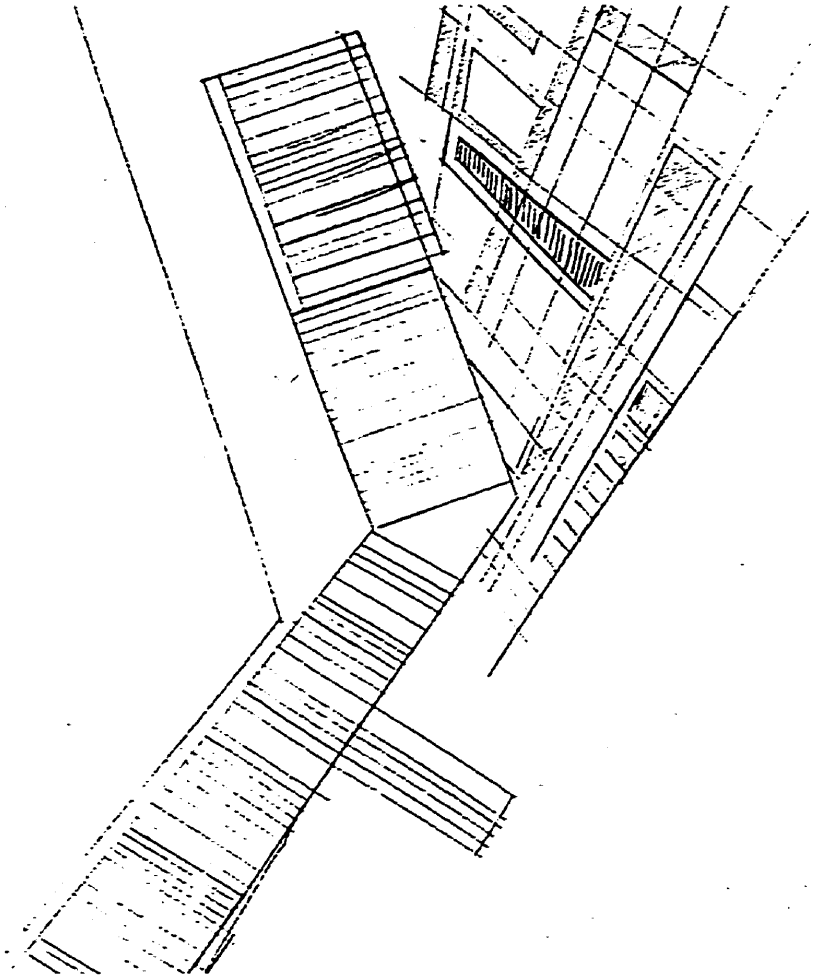

Fig. 26 Wyndham Lewis, Composition VIII
(*'Vorticist Sketchbook'* 1914-15)

Fig. 31 Raoul Hausmann, Tatlin at Home (1920)

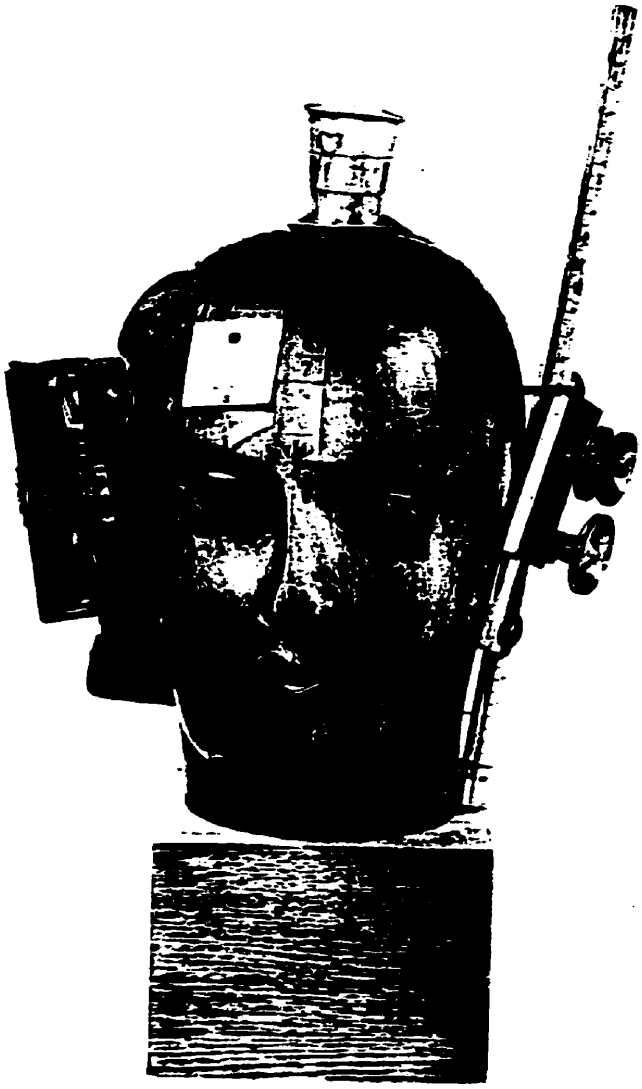

Fig. 32 Raoul Hausmann, Mechanical Head (1921)

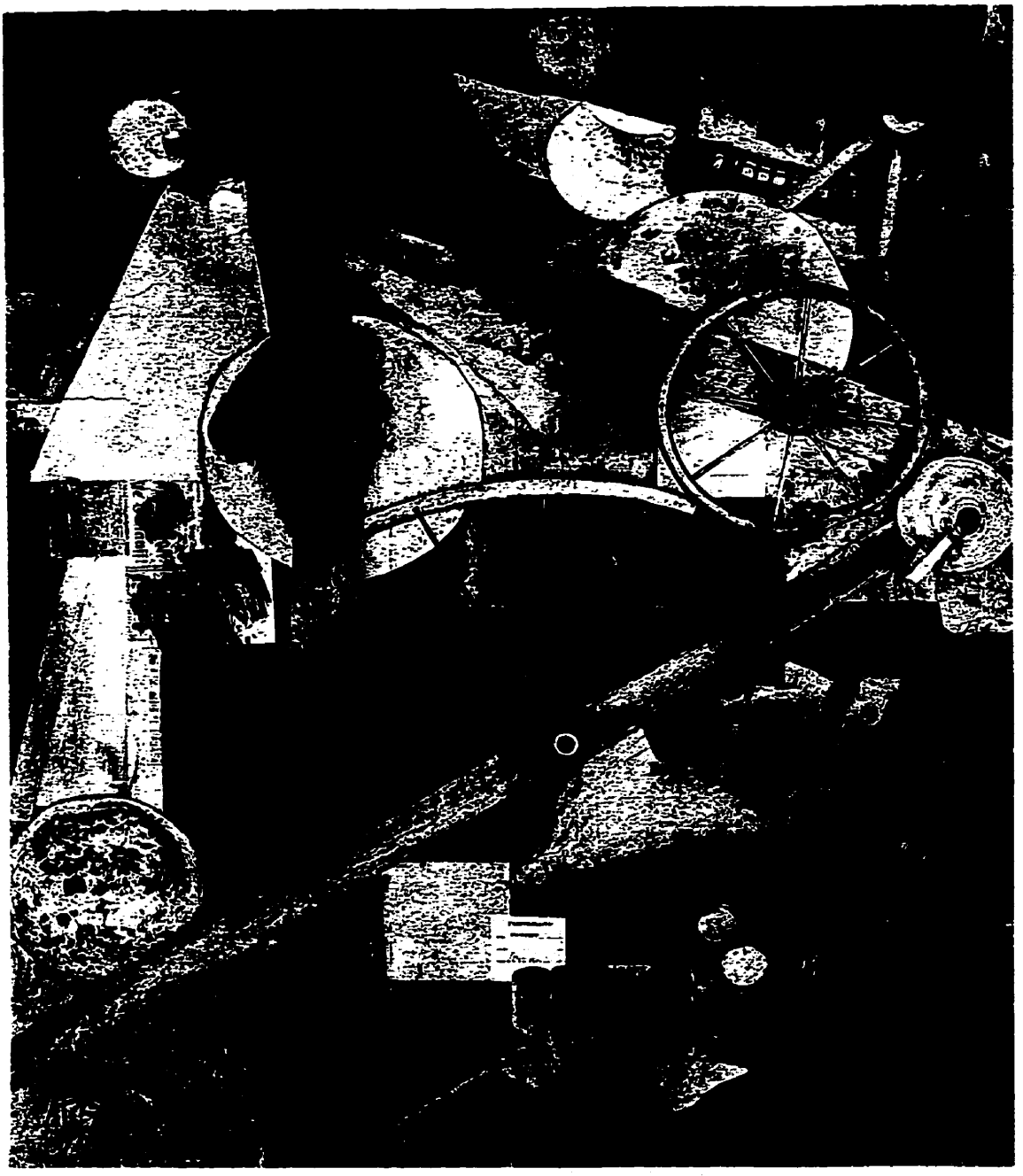

Fig. 33 Kurt Schwitters. Construction for noble ladies (1919)

Appendix 1

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