INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
MERCE CUNNINGHAM: DANCE AND TECHNOLOGY

by

Meirav Zaks-Zilberman

submitted to the

Faculty of the College of Art and Sciences

of the American University

in Partial Fulfillment of

the Requirements for the Degree of

Master of Arts

in

Performing Arts

Chair:

Naima Prevots

Ann Downhue

Jerzy Sapiejevski

Dean of the College

Date

1999

American University

Washington, D.C. 20016
ABSTRACT

At the end of the twentieth century, technology is changing at an explosive pace, changing with it the form and content of artistic expression. Nowhere is this connection more apparent than in the dance art of Merce Cunningham. In an attempt to gain insight into his creative process, his work with dance, film, video, and computer animation is traced from the early 1960s to the present. Resources consisted of textual and video materials as well as a first-hand study of the techniques of film, video shooting, editing, production, and computer-aided choreography. Cunningham’s approach to choreography is seen to be changing constantly to accommodate the constraints as well as possibilities of emerging technological media, from the near-documentary Story (1964) to the virtual choreography of Hand-drawn Spaces (1998), which exists in cyber-space. The following pieces were studied in depth: Story (1964), Westbeth (1974), Locale (1979), Points in Space (1986), and Trackers (1991).
# Table of Contents

ABSTRACT............................................................................................................. ii

TABLE OF CONTENTS....................................................................................... iii

CHAPTER

1. DOCUMENTARY APPROACHES................................................................... 1

2. COLLABORATION WITH ATLAS IN VIDEODANCE: WESTBETH...... 16

3. COLLABORATION WITH ATLAS IN FILMDANCE: LOCALE ........... 24

4. COLLABORATION WITH CAPLAN: POINTS IN SPACE..................... 33

5. COMPUTERS AND INTERACTIVE MULTIMEDIA................................... 38

6. SUMMARY ..................................................................................................... 48

BIBLIOGRAPHY.................................................................................................. 56
CHAPTER 1

DOCUMENTARY APPROACHES

In the early 1960s, Cunningham was interested in exploring and making documentary films of the choreography he had previously created. John Grierson, the founding father of the documentary film, has defined this process as the "creative treatment of actuality."\(^1\) The first chapter of this thesis will analyze excerpts of Cunningham’s documentary films, defined as the creative treatment of recording a live dance performance. These documentary film-dances examine the actuality (live dance performance) through the lens of Cunningham’s temperament and choreographic approach. They are unique, and represent the first step in Cunningham’s innovative vision into the process of incorporating technology as an every day life tool for choreography.

Cunningham’s use of film for documenting a live dance performance exposes the audience to evidence, realization, and inner debate about his creativity. In all the pieces that will be analyzed in this chapter, Cunningham collaborated with experienced filmmakers who had different approaches to the documentary process. Through those

collaborations, he learned what he needed technically and conceptually to explore technologically new film media.

In summer 1961, Cunningham made his first dance especially for television. It was directed by filmmaker Jean Mercure; the piece was called Suite de dances, rehearsed in New York, taped in Montreal on 12 June, and broadcast from there on 9 July\(^1\). The score was by the Canadian composer Serge Garrant in the jazz genre. The costumes—leotards and tights—were dyed by Jasper Johns, the first time this artist designed for Cunningham. The piece was performed by Merce Cunningham, Carolyn Brown, Judith Dunn and Marilyn Wood, lasted less then 10 minutes, and was commissioned by Société Radio-Canada\(^2\).

Cunningham quickly realized that the space seen by the camera was different from that of the stage: "I remember trying to figure out things for the camera, but I knew too little, and we had so little time, that I had no way of knowing whether it worked or not."\(^2\)

In July 1963, Merce Cunningham premiered a dance piece called Story, first performed in Royce Hall at the University of California, Los Angeles. It has since been performed nineteen times in the United States, with the number of performers ranging from five to eight (including Cunningham himself). As Cunningham wrote: "We played [Story] a great many times as it could involve one or all of the dancers, and be given

under any kind of extreme circumstance\(^3\). It was also performed twenty-nine times during the 1964 world tour with the entire company (ten dancers including Cunningham).

The music for Story was Toshi Ichiyanagi's Sapporo, a composition with a number of variable elements. Ichiyanagi made sixteen different scores, notated with a limited set of symbols. The score for Story allowed for different sounds at each performance\(^4\). The composer designed the scores so that the conductor, musician and dancers would be free as to the choice of instruments, how they would be played\(^5\), and changes in timing of phrases and sound units.

The painter Robert Rauschenberg designed sets, costumes and lighting for Story, using the chance method. The set for Story was composed of objects and equipment found by Rauschenberg in and around the different theaters where performances took place. Rauschenberg was actively involved in each performance. He would create a new physical environment each time by putting a variety of objects in different places. His physical presence was integral to each performance. For example, for four performance nights during the 1964 world tour, he made a painting on stage, adding to it every night. In other performances the stage had platforms, which Rauschenberg raised and lowered. At the performance of Story in Devon, England, Rauschenberg and his assistant, Alex


\(^4\) Sally Banes, “Merce Cunningham’s STORY” (1989)

Hay, brought in two ironing boards and proceeded to iron their shirts at the rear of the stage. The title Story is ironic; there is no conventional narrative. Instead, a story is created each time in a different non-linear manner by the way in which the movement sequences are done, the number of performers, and the kinds of objects and costumes used. Thus, the title does not refer to any implicit or explicit narrative, but to the fact that every spectator may see and hear the events in his own way.

In order to understand the film of Story, it is necessary to review the choreographic structure and elements used in the original dance. The basic material of Story consisted of eighteen movement sequences that comprised the score for the dance. Using chance methods, these sequences were performed in a different order and time frame for each performance. Merce Cunningham’s use of chance procedure is an important part of his work, both historically as it has informed the development of his compositional ideas, as well as in its direct relevance to his creation of Story and other pieces that will be discussed later in this thesis.

When Cunningham talks of his work with chance he says:

Some people think that it is inhuman and mechanistic to toss pennies in creating a dance instead of chewing the nails or beating the head against a wall or thumbing through old notebooks for ideas. But the feeling that I have when I compose in this way is that I am in touch with a natural resource far greater

---

6 Vaughan, 130-134

than my own personal inventiveness could ever be, much more universally human than the particular habits of my own practice.

By using the chance method, the guidelines of the structure are intended to produce a method of working that invokes a problem-solving approach to explore movement possibilities and relationships. Not only that Story was open-ended in terms of performers. As Cunningham wrote: “It is a dance for X-number of people.” But Story was made up of a series of sections (solos, duets, trios, and larger units) that could go freely from one to another, making their order interchangeable. Within a section the movements could change in space, time and sequence length. The sections and individual movements were given names for identification by the dancers.

The eighteen movement sequences in Story were named as follows: “Solo #1,” “Solo #2,” “Solo #3,” “Floor,” “Object,” “Tag,” “Space,” “Exit,” “Entrance,” “Fall Trio,” “Duet & Solo,” “Five-part Trio,” “Triangle,” “Hopping,” “CB&MC,” “Arm-Trio,” “SB&MC,” and “VF&MC.” In the “Floor” sequence, for instance, two dancers started at any point (on or off stage), moved in a pronounced, slow tempo across the area, separated for a short time and than danced together. In “Object”, the dancers manipulated, moved, and carried an object that Rauschenberg made or found; different objects for every performance. The order of movement sequences, as captured in the Story film, was: “Floor” (slow, 2 people), “Arm-Trio” (15 sec, 3 people), “Object” (5

---


9 Vaughan, 130.

10 Vaughan, 130-134.

The following discussion is about the film Story. In 1964, a documentary black and white film for television was made of the Story performance in Helsinki, Finland during the Cunningham Company’s world tour. The film was produced by the Finnish Broadcasting Company during a live performance, and simultaneously broadcast live on television in a transmission directed by Heiki Seppala. The only visual document of Story that exists today is videotape that was made from this film. Three sections will be analyzed; there will be description of what is seen on stage, and commentary on film technique.

The set design in the film was composed of radiators, fire extinguishers, ladders and other backstage materials, as well as a tuba, drum, chair, bicycle, washbowl, and wastepaper basket, all of which Rauschenberg had found in and around the theater3. The dance critic Wilfrid Mellers was very taken with the Rauschenberg set design but disappointed by the choreography in Story. In his 1964 article he writes:

…Here (in Story) Rauschenberg comes into his own, for there is a setting (a television studio), and the dancers, inspiring one another to variously indeterminate activities, bring in an assortment of Rauschenbergian
“objects.”...The ballet consists of “happenings”, executed, however by dancers of great technical skills.\textsuperscript{11}

This particular theater, in the film of \textit{Story} in Helsinki, had a moving circular platform on the stage that was utilized during the performance. The cast included Carolyn Brown, Merce Cunningham, William Davis, Viola Farber, Debora Hay, Barbara Lloyd, Sandra Neels, Steve Paxton, and Albert Reid.

The dance opened on a dark stage; the set included one “bicycle-sculpture” center stage and part of an old bus door on the right upstage floor. The “floor” and “Arm-Trio” sections are discussed here in sequence. Two female dancers slowly walked together to downstage left, and one of them began an arabesque movement. One male dancer (Cunningham) crawled on the floor from backstage along the side of the curtain. The two women and Cunningham then moved in place, flinging their arms slowly outwards and inwards. One of the women began to move toward Cunningham while performing passés, attitudes, and grand battements. She sat on his back while he continued to crawl on the floor, and then switched places with the second female and remained standing motionless. The second female made one circle around Cunningham, falling with her back on him and then returned to her original place. Another male dancer joined them from upstage left in a short phrase around the “bicycle-sculpture”.

In \textit{Story} the filmmaker started out with wide angle shots of the whole stage. The piece started in darkness, and then the stage lightened gradually. Very close to the beginning, as the two women walked to their place, the camera began to show close ups

of the whole body; first just the two women, then Cunningham, then all three. As Cunningham started to move away from the two women, the camera returned to wide-angle shot. In this first part of the dance the camera was fairly stationary, and there was no attempt to emphasize particular movement or moment.

The next section was "Object". It began when another female dancer entered the stage, picked up and carried an object on the floor. She held the object and then put it in a new place. For the next few minutes different dancers looked, handled, carried, dropped or otherwise interrelated with the object. The timing in this section was very important. Even though the dancers had considerable freedom as to how long they moved with or around the object, the section was meant to have a kind of drama that emerged from the coming and going of the dancers, all moving at different times. Carolyn Brown commented on the fact that Cunningham wanted freedom, but with limitations if the chance encounters were not emphasized through poor use of time:

We had so much freedom in Story in terms of timing-or at least we thought we did - that perhaps he (Cunningham) thought we were taking advantage of him in certain performances. I remember one situation in which we each had our own phrase to do - it was the "Object" phrase-and one of our members stayed out there too long, and he (Cunningham) didn't like it at all. He picked her up bodily and walked her off the stage. Because there were certain things that were extremely important to him - especially timing. Timing as part of the total structure of the piece. He has an extraordinary sense of timing and theatrical showmanship.12

In this section the filmmaker did nothing to work as collaborator with the dance. The camera was stationary, and provided a matter of fact view of the stage. The drama of

12 Carolyn Brown, Douglas Dunn, Viola Farber, et. al., "Cunningham and his Dancers" (1987), in Kostelanetz, 101-123.
encounters with the object does come through, but often particular movements and dancers are lost.

The next and last section that will be analyzed in Story is the "Space" section. The major part of this section focuses on repetition of a duet theme, wherein different men sequentially carry women to various parts of the stage, and put them down. This leaves five women standing on stage. At that point, the women are scattered in space and fall, walk, stand, and jump, with different dynamics. Their movements are all done facing different directions; this gives a sense of no one single focal point, but rather a multi-directional feeling with no priority as to any specific place in space. They also move on different levels. During all this activity, the revolving stage turns, and, when it stops, the women stop also. At that point, the men take them off stage.

In the "Space" section all of the emphasis that Cunningham places on non-linearity and open-ended spatial activity is achieved through the revolving stage. The camera does not participate in this; it is stationary, and captures only what can be filmed from a direct frontal position. The film work therefore is not really in partnership with the choreography, accentuating Cunningham's use of space and time.

The film of Story does provide some sense of intimacy, not possible for an audience to feel in a large theater. However, this sense of intimacy is limited by the fact that the camera does not move with the dancers for the most part. There are no close-ups which provide a view of face, hands, torso or other body parts. There are only close-ups which reveal the whole, and only from a frontal perspective.

During the 1960s, different pieces from Cunningham's company repertory had been filmed or televised at various times in the company history, though never with
supervision by Cunningham himself. In the case of Story, there was some supervision and involvement in the film media by the choreographer. The film could be considered a documentary from the definition of documentary as the creative treatment of actuality, in this case of a live dance performance. In fact The Cunningham Foundation has never succeed in acquiring kinescopes of the Story telecast. While it is very valuable to have a record of this dance, Cunningham became less interested in filming documentaries of his work as time went on. He began to be involved in the film and video process, and the next film to be discussed shows a different approach to the use of the technology.

Following Story, in 1965 Cunningham collaborated with the musician John Cage in a piece named Variations V that involved a fairly large range of technology and some experimental film work. Cunningham said: “There was so much technology involved that out of necessity I had to leave some of it indeterminate since we did not know until we got there what these things were going to do.” In this piece John Cage examined and experimented with the effect of movements on sound. Two sound sources were used: the first was a series of twelve poles (like antennae) that were placed all over the stage, each with a sound radius, (sphere-shaped), of four feet. When a dancer came into this radius a sound would result. Cunningham says: “...None of this put me off, but I did wonder about our feet and the wires, which would be running from the base of the poles to the machines which controlled all this, and for no reason as they turned out to be easily

13 David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 146-151.
surmountable.\textsuperscript{14} The second sound source was a series of photoelectric cells, which were to sit on the base of the twelve poles. The dancers in Variations V could trigger sound, but the kind of sound, how long it might be or the possible repetition of it, was controlled by the musicians.

Another technological element involved in Variations V was the use of film by Stan VanDerBeek and his assistant Tom Dewitt. They took close up shots of the dancers' body parts and shots of rehearsals and combined them in the editing process still shots from movies with contemporary scenes. Those shots than were edited as a montage film that was projected on a big screen on stage during the live performance. Most of the images, because of the use of close ups shots and the combination of different image sources, subjects, and sizes, were seen on the film as abstract images. As Cunningham said:

\begin{quote}
...Stan came to the studio one day when we were rehearsing and without disrupting the dancers at all shot through and around them. He shot my hands and feet several times. He said the feet would look marvelous blown up to such a size, like an army; when I saw them, more like elephants-at least they are light animals. Stan used other images, still shots and shots from movies, a montage of contemporary scenes, automobiles, a man in space, nature, buildings...\textsuperscript{15}
\end{quote}

In Variations V the videographer Nam June Paik was part of the experimental film-making process. He developed new ways of changing the video images that were projected on the screen. He used editing techniques of rendering images, colored images in different color keys, and inserted a few images together at different angles and in

\textsuperscript{14} Ibid., 147.

\textsuperscript{15} Ibid., 150.
different renderings. VanDerBeek was using some of these ways to change images in the film projected on the screen during performance. The film version of the live performance of Variations V was made in Hamburg, July 1966; produced by Studio Hamburg and directed by Arne Arnbom.

In 1968, Cunningham had the opportunity to be involved in a more extended dance-film work for the television medium. In collaboration with the filmmaker Richard Moore for KQED television station in San Francisco, he created a piece named Assemblage. It was made on location in Ghirardelli Square in San Francisco. John Cage, David Tudor and Gordon Mumma created the score.

Assemblage represented the amalgamation of two distinct ideas: one, a film about the place itself, and the other, a film about the dance company. The film showed the dancers disporting themselves in the Ghirardelli Square environment, as a kind of fanciful extension of the relationship between the environment and the people who normally visited it. Ghirardelli Square is a transformed urban environment, where a once run-down market and manufacturing area was restored, prettified, and made into a mall-like precinct with restaurants, boutiques, galleries, and promenades. In an interview, Cunningham told the San Francisco critic Robert Commanday that his idea was "the finished film will deal not so much with dance in the narrow sense, but with various motion - boats moving, people walking, and of course, groups dancing." Cunningham’s notes for the film not only include ideas for movements, but also indicate his desire to explore the possibilities of the film medium, camera placement, shooting angles, and the

\[16\] Ibid., 167.
idea of using the editing technique in which the same shots would revealed dancers with
dance clothes or street clothes while performing the same movements\textsuperscript{16}. At the end, a
ninety-nine minute film was made out of six hours of footage.

In 1974 Cunningham was pursuing his interest in choreographing for the camera.
In that year he had collaborated with Charles Atlas, who took an active part in the
preparation of a two-part program for CBS Camera Three, \textit{A Video Event}, directed by
Merrill Brockway. Part One began by showing a company class, then moved into parts
of Winterbranch, the Cunningham solo at the beginning of Second Hand, an excerpt from
what was to become \textit{Sounddance}, and finally part of \textit{TV Rerun}. For the latter, the screen
was split into four parts, one of them showing a tape Cunningham himself had shot
during a Studio Event\textsuperscript{11}. Part Two began with further footage of a rehearsal of
Steps} was also shown on four screens.\textsuperscript{17}

\textit{A Video Event} was the first television version of the kind of performances
Cunningham’s company had been giving in museums, gymnasiums, sports arenas and
other non-theatrical spaces. The music was by Christian Wolff. Cunningham, Charles
Atlas, and Brockway worked closely together on the adaptation of the material for the
screen performance. In 1976 Cunningham summarized his ideas about dance for
Television after his collaboration with Charles Atlas for the “Dance in America” series:
“Charles Atlas …and I spent four weeks working out the dances and experts from dances

\textsuperscript{17} David Vaughan, “Locale: The Collaboration of Merce Cunningham and
Charles Atlas”, \textit{Millennium Film Journal}, 10/11 (Fall/ Winter 1981/ 1982)
we planned to present. The excerpts that were from the repertory were remade and angled for the camera; in some cases they were shortened, as I feel one receive information quicker and more directly on television than on stage”. 12

By 1977, Cunningham had made a big leap forward in understanding and utilizing film as an expressive and experimental medium for his work, as can be seen in Events For Television. Events For Television, excerpts from Cunningham’s choreography, were made into a film for television in 1977. Here Cunningham’s work was broadcast for the first time in “The Dance in America” series. Here, the director Merrill Brockway utilized many close up shoots, particularly in the upper body and creates a sense of intimacy and excitement about Cunningham choreography.

The use of visual media, such as film or video to document Cunningham’s dance performances, can be taken as a figurative language for understanding his abstract choreography. Although today his use of film for documenting live dance performances for the screen is taken for granted, at the time he was one of the few pioneer choreographers involved in the process of making documentary films. Moreover, making these documentary film-dances and broadcasting them on television had an impact on how the audience perceived his work and exposed his work to a wider range of audiences.

Cunningham’s visions to incorporate his ideas and materials through film and dance expanded his knowledge in film and impacted his choreography. By collaborating with experienced filmmakers, and being involved in the creation of his documentary film dances, he learned film techniques and explored film as a tool which enabled him to
project images of dancers and movements, to analyze and document movement and later to create a new form of dance.
CHAPTER 2

COLLABORATION WITH CHARLES ATLAS IN VIDEODANCE:

WESTBETH

After exploring the documentary film-dance media, Cunningham was interested in perusing his experimental collaborations with filmmakers and being more involved in the directing part of the creation of videodances projects. His first collaboration, in which Cunningham was an active partner in directing the video, was with Charles Atlas. Together, they were experimenting with different styles of video technique.

Merce Cunningham and Atlas made three original works for video: Westbeth (1974), Blue studio: Five Segments (1975) (WNET/TVLab)¹, Fractions I and II (1978). One of these videodances, Westbeth, will be analyzed in depth as an example of their work. An overview of the other two works, Blue Studio: Five Segment and Fractions I and II, will be given. Choreographic phrases and video media will be discussed in terms of camera angles; fragmenting images among a number of screen actions taking place simultaneously in different areas of the studio; and editing.

In Fall 1974, the Cunningham Company started to work on a videodance project, devised specifically for the medium, the first to be made by Cunningham himself. This was in collaboration with the filmmaker, videographer and the company stage manager, Charles Atlas. The first of these was a piece named Westbeth that was taped at the Merce

¹ Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Cunningham Studio in Westbeth, New York, in the fall of 1974. The music was by John Cage, and the costumes were by Mark Lancaster from a design by Jasper Johns. Westbeth was shown to the public first on 14 February 1975; there was a screening of the video, followed by a live performance of the piece. Cunningham said in an interview about videodance and about his collaboration with Atlas:

About ten years ago, it struck me that there was bound to be a close connection between dancing and TV because dancing is visual. As soon as it became possible to see what had been taped immediately after the taping, I realized that it would be interesting for dancing. Our actual work on video began with the arrival of Charles Atlas as an assistant stage manager. His work had been in movies.  

It was a piece for eleven dancers (not including Cunningham), that included Karen Attix, Ellen Cornfield, Meg Harper, Catherine Kerr, Chris Komar, Robert Kovich, Brynar Mehl, Charles Moulton, Julie Roess-Smith, Valda Setter-Field and George Titus. The piece was made of six sections. In each section a new aspect of the video medium and its relation to the dance was examined. Karen Carreras writes:

Dancers introduce themselves in the first section by staring directly into the camera. In section II the camera obscures the dancer’s relationship to space through the use of close-ups. In the third section, the viewer’s attention is continually re-centered upon a new dancer who has entered the group. Section IV investigates the possibilities of deep focus and its relationship to movement. Section V employs an elaborate use of multiple cameras. And lastly, in section VI, separate movement segments were joined together in the editing process, thus creating the effect of physical and spatial discontinuity.

---


2 David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 191.
Westbeth was a black-and-white video. The first section began with long shots utilizing different camera angles that revealed different parts of the studio. Then a female dancer entered the studio, walking. The camera in that section was stationary and used close-ups of upper body movements and dancers' faces. The dancers focused on the camera while performing arabesques, attitudes, passes and torso contractions, all in slow timing. The hands was usually held close to the body sides or held in second position. By editing different shots of the same movement, the viewer got to see different body parts, angles and sizes of images. Both the experimental shooting process and the editing were important here, contributing and extending Cunningham's experiments with the video media.

The second section emphasized Cunningham's idea of multi-focus space. The hand-held camera followed the dancers with close-up shots of their faces as they moved in different directions in space. The camera revealed the dancers' backs, sides and other different angles, while the dancers looked in different directions and danced in different parts of the studio.

Section IV investigated possibilities for creating new images from the movements by using deep focus in different relationship to the movements. The camera concentrated on different body parts (such as ribs, pelvis, spine, and knees) from unusual angles, so that the body parts looked like abstract images. The viewer could often not recognize exactly what was shot.

In an interview about Westbeth, Cunningham had this to say:

For each dancing section of Westbeth we asked questions about video. The first one, for example, was concerned with the changing distance from the camera of each dancer, ranging from close-ups to long shots. These changes
were made involving movements so that the dancing did not stop. In another section we asked how to cut from one camera to the other, making these cuts on the dance rhythms in such a way as not to interrupt the flow of the dancing; a cut is at a single instant. Or another question: how to tape five dancers each doing different movements in different directions and keep all five in full figure.3

In Westbeth Cunningham himself directed the video and choreographed for the first time for the camera. Cunningham said about his first steps of learning how to use the camera “we bought one camera to begin with, I had to learn how to switch it on and off; that was the level.”4 In Westbeth he was dealing with a different learning process and an experimentally new approach to his choreography.

In Westbeth Cunningham explored the video medium by using different cameras and viewing angles. The hand-held camera provided mobility for different kinds of focus and for close-up shots. Cunningham combined his knowledge in the art of making dances and manipulated the main concepts especially for the camera to show new image possibilities and intimacy.

The next video project that Cunningham and Atlas collaborated on was in 1975, called Blue Studio: Five Segments. Cunningham was invited to produce a work at the WNET/TVLab, in New York. It was a fifteen-minute solo piece danced by Cunningham. As David Vaughan wrote in his book, “In that piece Cunningham and Atlas experimented with the Chroma-key process, which enables a figure to be seen against a changing background, an effect reminiscent of the dream sequence in Buster Keaton’s Sherlock


4 Ibid.
Atlas was experimenting with the video editing process. He was using a few images from different angles or perspective, images without colors together with color images, and different colors keys. The final section of this piece included five Cunningham's images, all moving simultaneously. This section had to be shot five times.

In 1977, the next video project Fractions I and II was made and directed by Cunningham and Atlas. It was a piece for eight dancers (not including Cunningham) danced by Karole Armitage, Louise Burns, Graham Conley, Ellen Cornfield, Meg Eginton, Lisa Fox, Chris Komar, and Robert Kovich. In Fractions, Cunningham and Atlas played with the idea of fragmenting images among a number of screens. Fractions was videotaped the first time at the Merce Cunningham Studio, Westbeth, New York.

The score was by Jon Gibson; Mark Lancaster designed the costumes and the decor. The decor for the video work consisted of two 6’x4’ painted rectangular panels, which were placed at right angles to the studio floor. Between takes, the panels were moved, so that sometimes they appeared behind the dancers and other times, between them. The costumes were multicolored leotards and tights.

In Fraction, from a choreographic point of view, action was taking place simultaneously in different areas of the studio. In the video, this action was seen on the screen.

---

5 David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 196.

6 The stage version of the piece titled Fractions and the video versions that included the same movement but different shoots and different dancers were edited in two other versions under the titles Fractions I and II. Fractions received its first stage performances in repertory programs at Boston English High School from 25 February through 1 March 1978.
main screen and also on monitors set up within the range of the main camera. Carreras wrote:

As many as four video monitors share the screen space with the dancers. Projected on these monitors are both images of dancers absent from the central dance space and close-ups of dancers who are present in that space. Thus dancers just outside one camera's range could be viewed by another camera and seen in smaller scale on one of the monitors within the screen. The division of the frame into parts or "fractions" allowed... Atlas to group more dancers into the frame, while still achieving greater depth and fluidity of movement by alternating between the monitors and the studio space.7

Cunningham said about Fractions, "Why shouldn't the audience see you as if you were on the street-from all sides? I take the view that all the dancers are doing something interesting."8 Movements in works such as Fractions seem random, there is almost no virtuosity in the acrobatic sense; instead there is theater through visual jokes: a limp dancer becomes stiff as cardboard and is carted off, or three women climb a male dancer like cats on a tree. When Cunningham talked about his choreography for the camera he said:

A six-inch shift can seem large on the camera. This also can cause a displacing in the timing, requiring a change in rhythm, or the amplifying of a dance phrase, sometimes necessitating a cut or speed-up of the movement. In the conventional music-dance relationship, this could require a constant recomposing or rearranging of the sound. But since I work separately from the music and not on a note-by-note relationship, I was free to adjust the dance phrases and movements through the camera in a visual sense.8

7 Ibid., 204.

8 Ibid., 198-199.
The collaboration with Atlas as a videographer, and with the video medium, meant a lot for Cunningham. Together they opened a videodance workshop that expanded their collaboration and provided new ideas.\(^9\)

Merce Cunningham had been fascinated with the film medium, and he chose to explore video to achieve more than preservation and documentation of his work. Cunningham was trying to find answers to the question of how to transform a three-dimensional dynamic art form into a flattened rectangular television screen. The first steps he took were to learn the video medium and how to work with a camera, by collaborating with the filmmaker and videographer Charles Atlas on the video projects that were described here in this chapter.

Cunningham’s videodance work involved a complete collaboration between the choreographer and the camera, the production of choreography specifically designed to be seen on television, and works that took advantage of video as a medium.\(^10\) Cunningham wanted to make videos where he could controlled the process by directing, shooting, and editing. In his videodances Cunningham used shooting techniques developed in the mid 1950s by other filmmakers.\(^10\) Cunningham and Atlas recognized the power of utilizing a number of cameras, variously deployed in the auditorium. They

---

\(^9\) During that collaboration, a videodance workshop conducted by Charles Atlas was given in Cunningham’s studio (50 years pp 202). By that time the Foster/White Gallery had exhibited other collaborations of Cunningham with the designers Rauschenberg, Jesper Johns, Frank Stella, and Andy Warhol together with the painting by the artist James Klosty and scores and manuscripts by John Cage.

developed a method interpolating long shots and close-ups from various angles (as when shooting a live soccer game). By using these techniques, Cunningham was presenting a performance that had rhythm, excitement, and beauty of its own, apart from the stage show that it was recording and commemorating.

Cunningham predicted that videodance was only the beginning of exciting possibilities that could expand the dance world. In an interview with Jacqueline Lesschaeve, he said that the energy and the dynamics of movement are different when seen on video:

I have a feeling video will change and develop far more than film. The time is not far away when screens will be better and bigger; then the energy is very different. We danced in a gymnasium with screens that gave a life-size image. We did the dance three times; the dancers began after the video image, in counterpoint rather than synchronized with it. The third time they were in synchrony. It was like a game, amazing. I had seen this on a small screen and now the total energy came out in very different way.  

11 Cunningham, 192.
CHAPTER 3

COLLABORATION WITH ATLAS IN FILMDANCE: LOCALE

Merce Cunningham and Charles Atlas, having familiarized themselves with the grammar of videodance, began to increase the scope of their experiments, using more elaborate technical means. In the late 1970s, Cunningham decided to expand his restless search for new ways to move and to choreograph specially for the film medium.

Cunningham and Atlas made three original works for film: Locale (1979), Channels/Inserts (1981), and Coast Zone (1983). This chapter is an analysis of one of these filmdances, Locale, and an overview of Channels/Inserts and Coast Zone. Choreographic phrases and film media will be discussed in terms of camera mobility direction, mobility speed, camera angles, and complex editing processes.

In 1979 Cunningham made his first dance for film (as opposed to video) in collaboration with Charles Atlas; the piece was named Locale. The music was by Takehisa Kosugi; with costumes by Charles Atlas. Karen Carreras wrote: “Atlas was choosing the same hues as are seen on television adjustment color bars, and combining these with gradations of the corresponding gray-based tones used in tuning black and white television monitors.”¹

¹ David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 207.
The first public screening of Locale was 24 February 1980, at City Center Theater, New York. Locale was a piece for fourteen dancers (not including Cunningham), performed by: Karole Armitage, Louise Burns, Ellen Cornfield, Meg Eginton, Susan Emery, Lisa Fox, Lisa Friedman, Alan Good, Catherine Kerr, Chris Komar, Robert Kovich, Joseph Lennon, Rob Remley, and Jim Self. During the rehearsals, because of money problems related to technical issues, the dancers were divided into two groups; each group was called at separate times for film shooting.

Locale was filmed at the Merce Cunningham studio, Westbeth, New York. For the film shots, curtains, floor, and screens on the windows transformed the Cunningham Studio into a black box. Cunningham and Atlas used different approaches to their film work in Locale. David Vaughn wrote:

Cunningham and Charles Atlas spent several weeks on advance planning, since the project was especially complicated. Their previous video-dances had dealt principally in movement within the frame rather than in movement of the frame—that is to say, they had mostly used a stationary camera and had foregone any fancy editing. Now they were ready to investigate the possibilities of a moving camera. Because they wanted the camera to move not only along with but around and among the dancers, and at different speeds, its movements would have to be choreographed as precisely as those of the dancers....

There are some obvious differences between dance as seen on the stage and dance on television or film screen. One of them is the spectator’s freedom to direct attention: during a live on stage performance, whereas on the screen the viewpoint is that of the

---

2 Atlas also recorded the making of Locale in a documentary called Romain I, using some material shot during the filming as well as outtakes from Locale itself.

3 Ibid.
camera, controlled by the director and, in Cunningham’s case, by the choreographer. Advanced planning is essential to make sure camera focus is clear and guides the spectator.

The first section of Locale started with a long shot of a male dancer who performed stop-motion movements, most of them in one place in the center of the studio. Then, the camera moved in a ‘dolly in’ direction and revealed a female dancer in a different part of the studio. The male moved towards the female, and together they performed stop-motion movements. Their movements included different levels in space: on the floor, on their knees, and in standing positions. The hands made sharp changes between bent and straight movement; on the dancers’ shoulders, to the sides of their bodies, reaching forward or in fourth position. The camera continued to move around the first couple, shooting them dancing from unusual angles. The camera soon revealed a new group of three dancers in a pose; then they started to move in space. In this section Cunningham experimented and explored the camera’s mobility. As David Vaughan wrote:

...In the first section of Locale the camera moves at sometimes dizzying speeds, back and forth, up and down the length and breadth of the studio space, revealing different groups of dancers who appear in the camera’s field of vision (instead of entering, as they would have to do on stage). Some of them - on camera anyway - are more prominently visible than others, according to whether they are in the foreground or background of the picture... Perhaps to avoid forcing the spectator to register too many kinds of movement at once, Cunningham choreographed this first section mostly in terms of stop-motion poses. It was shot virtually in one take; what cuts were necessary were made as unobtrusively as possible, usually when the camera passed a blank wall.4

The second section consisted of a sequence of short passages, separated in the editing process by cuts. In this section the movements become more fluid. The cuts were made usually when moving to different dancers in different spots on stage. This section emphasized Cunningham's multidirectional space concepts: The camera revealed a number of different things that occurred simultaneously. Moving in close-ups shots and concentrating on certain dancers and on certain movements, the view to a large extent was determined by Cunningham. As the critic Marcia B. Siegel wrote, "I'm ... impelled to give up my own center and submit to an external motion that I can neither predict not control."5 Arlene Croce observed that "it is with Cunningham's own eye and mind that we see the choreography of Locale - communication as direct and transparent as any we have had on film since the hand of Picasso drawing in Le Mystère Picasso."6

The editing process in Locale was more complex compared to the editing process in previous videodance works: the editing emphasized the virtuosity of the dance movements. One example was when a male dancer leaped off some steps, crashing to the floor, and immediately another male dancer lifted a female dancer. That kind of editing created a surprise element by not allowing movement sequences to be fully completed and by combining different shots in a way that it a live performance on stage cannot do.

Cunningham preferred to keep cuts to a minimum, at strictly logical points in the dance. The partnership of exiting and experimental camera work emphasized the

6 Ibid.
virtuosity. Later, in another section of Locale, the camera at one point executed a complete 360-degree revolution, finding dancers in corners of the studio or catching their reflections in the mirror. Cunningham defied the limitations of the space; how many dancers could make an image and still be captured by the camera. The conventional stage space was opened up, as Cunningham said:

> The limitations of the space are clear: what the camera will take; In this case, the possibilities given by several cameras, so that they focus on space differently... Then I began to isolate the dancers into couples... so that the camera could go from one to the other. Groups of people large enough to make an image, small enough so that the camera could come close, entirely close, giving the specific quality of the close-up.7

Cunningham realized that a wider public could be exposed to his work through film. In Locale, for the first time, Cunningham used two different kinds of mobile cameras, in addition to the Steadicam that he had used for his videodance work. He also started to use a Movieola crab dolly, and an Elemac dolly with a crane arm. A moving camera is very important in film dancing; one kind of movement can have the effect of canceling out the other. Moreover, the camera moves as the human eye cannot—in speed, to heights and from angles this makes us aware of the limitations of the traditional theatrical view and shoot of a dance. Locale suggests that the choreographer in some cases needs to be responsible to the movements of the camera and audience view, as well as for the movements of the dancers and the relationship between the two. Because a great deal of Locale moved over a large space of the main studio, the camera was often

taking an amount of empty floor not immediately occupied by the dancers.\textsuperscript{8} That gave a
variety of editing options and prevented missing parts of the dance that were necessary in
the shooting process.

Due to the extremely high cost of film equipment, Cunningham rented the
equipment he needed, which limited his work in terms of rehearsal and shooting time. In
the words of David Vaughan:

\begin{quote}
Cunningham and Atlas did as much advance planning as possible; the
logistics were figured out as far as possible on paper beforehand, then Atlas
had one weekend to practice with the equipment without the dancers. Then he
rehearsed along with them, to set the path he would follow when using the
Steadicam\textsuperscript{9}. When it came time for the actual shooting, certain adjustments
had to be made - as Cunningham has said, there are certain things that the
camera “just won’t do” - but for most part things went according to plan.\textsuperscript{10}
\end{quote}

In 1981, Cunningham and Atlas collaborated on another film named

\textbf{Channels/Inserts}. This piece was choreographed as a film, and then arranged for stage
performance. Music was by David Tudor and costumes were by Charles Atlas. The
filming was at the Merce Cunningham Studio, Westbeth in the main studio, the small
studio and the office area; the main studio was transformed into a black box with covered
windows.

Charles Atlas compared the film to something going on at the same time in
different rooms: “It’s as if you have two movies going on at once - both have a total

\textsuperscript{8} David Vaughan, “Locale: The Collaboration of Merce Cunningham and Charles
Atlas”, \textit{Millennium Film Journal}, 10/11 (Fall/ Winter 1981/ 1982)

\textsuperscript{9} As a technical solution, in \textit{Locale}, Atlas’s assistant, Elliot Caplan, devised an
elaborate system of pulleys to pull cables out of the shot as the camera pursued its path

\textsuperscript{10} Ibid.
continuity, but you have to make a choice between which you want to show at any given moment." To create this effect, Atlas devised transitions. When the action shifted from the main studio, the picture disintegrated, revealing another:

The conception of Channels/Inserts suggested we make use of cross-cutting, a classic filmic device developed by D. W. Griffith, to indicate a simultaneity of dance events in different spaces; such simultaneous presentation is particularly well suited to Cunningham’s choreographic aesthetic. In addition, I have designed animated travelling mattes as transitions between some scenes as a rhythmically irregular alternative to a straight cut. These serve as another way to show, however briefly, different simultaneous events in a precise way that is related to the dance movement.1

The film was planned to have continuous action in one space and “inserts”. The “inserts” were made in different places. The order in which they would be used, whether action would occur in more than one location at a time, and how many dancers would be involved were all determined by chance.

As in Locale, three cameras were used: fixed, dolly, and Steadicam. Cunningham said about Channels/Inserts:

I wanted to find a way to cut down on the amount of space the camera covered in a still shot... For Channels/Inserts, one of the ideas was to limit the space the camera focused upon, and then find out how to move the dancers within this restricted area. For me, it meant going back to the technique class and instead of making exercises which carried the dancers through the space using large second and fourth positions as intermediate moving steps, change to tighter ones, using first and fifth positions and to work on movements that go out from these positions, and although not large in themselves, would look large on camera. Instead of four directions, only front back and two sides, I used eight, those four and the diagonals, further adding angles off the eight of them, all precisely made for the camera. I looked for rapid complicated foot

---

1 David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 215.
action using many changes of movement and direction in small space - like dancing inside a small circle and hitting different points on the edge of it.\(^{12}\)

The next project, Coast Zone, was made in 1983 as a film, again with Charles Atlas as collaborator. Later the piece was arranged for stage. It was filmed in the Synod House of the Cathedral of St. John the Divine. The music was by Larry Austin, and it was called Beachcombers; Mark Lancaster and Charles Atlas designed the costumes. It was a piece for twelve dancers not including Cunningham. The choreography and the camera movements were devised based on chance operations. As Cunningham wrote:

That is, the sequence and overlapping of movements and the number of dancers to be seen at any given moment, and the space the dancers were to be in as well as the changes of camera positions were initiated by chance means. We used close-ups as an integral part of the film. My starting point for the division of the space was to plan it in three areas, rear, middle and front, that is, full figure to be seen in the rear, full or partial figure in the middle and close-ups in front...\(^{13}\)

In Coast Zone we can see fluidity, shifting of weight, and rapidity of image changes. There is a sense of rushing that is created by constantly transforming movement, along with the large image the close-up presented in the camera.

Cunningham said about the use of the film medium in Coast Zone:

I used chance process to determine the camera position, how many close-ups, middle range and back shots there would be and what the dancers do from the close-ups—whether they go to the middle, back or exit—the constant, was that there would be no more than five dancers in each shot and nine possible camera positions.\(^{14}\)

\(^{12}\) Cunningham, 155.

\(^{13}\) Ibid, 158.

\(^{14}\) David Vaughan, *Merce Cunningham: Fifty Years*, ed. Melissa Harris
In *Coast Zone* the camera was always in a moving position, and rarely shooting from a fixed position. Another important new element in the film medium in *Coast Zone* was the use of deep focus; “contrasting background figure (often in motion) with those in the foreground (sometimes in extreme close-up).”14

( *Aperture*, 1997), 221
CHAPTER 4

COLLABORATION WITH CAPLAN: POINTS IN SPACE.

Charles Atlas left the Cunningham Dance Foundation in 1984, and Eliot Caplan took his place as filmmaker and videographer in residence in 1985. Cunningham and Caplan made four videodances: Deli Comedia (1985) Points in Space (1986) (which was remade later for the stage), Beach Birds for Camera (1991), and Installation (1996). The composition of one of these video pieces, Points in Space, will be analyzed in light of Cunningham’s innovative approach to the use of time and space in choreography. In addition, his use of the video media (in terms of multiple points of view, scenes, takes, and editing) will be analyzed. There will be a brief discussion of the two other videodances, Deli Comedia (1985) and Beach Birds for Camera (1991).

In 1985, Cunningham made his first videodance in collaboration with Eliot Caplan; the piece was named Deli Comedia. The music was by Pat Richter and he titled it: “I Can’t Go on to the Next Thing Until I Find Out about You.” This score functioned like the piano accompaniments to silent film. Dove Bradshaw designed the costumes. It was an eighteen-minute piece performed by a student group at the studio, including Brenda Daniels, Frey Faust, Kristy Santimyer, Carol Teitelbaum, and Bill Young. The dance was taped at the Merce Cunningham Studio, Westbeth, NY.
In this piece the dancers used both the floor and the small stage of the main studio, and made entrances and exits through the doors and arches, Caplan wrote:

Cunningham...wanted to create a sense of different spaces or scenes within his studio, and incorporate into the development of the choreography the various possibilities present by its physical layout...Cunningham had wanted to shoot the entire work in one continuous take. After several days we agreed on specific cuts which would allow the editing to share in the rhythm of the dance.¹

The dance was conceived as "slapstick comedy", Cunningham's nod to the improvised farces of Italian 18th-century commedia dell'arte and to the comedies of the silent screen. There was a film screen in the stage background that produced the illusion of a movie within a movie.

In 1986, Cunningham and Caplan developed their second videodance project, Points in Space. The title comes from Albert Einstein's statement "there are no fixed points in space", a favorite quotation of Cunningham. As David Vaughn wrote, "The phrase also refers to Cunningham's perception of the nature of the space in video, which he feels offers the possibility of multiple points of view instead of a single one."²

The music was by John Cage and named Voiceless Essay. Cage used computer-generated chance operations to choose words. The words were recorded, synthesized and analyzed by computer. Each of the company musicians who performed the score played a cassette tape of the recording, muting it during the performance for varying duration's of between thirty second and two minutes. The costume designed, by Dove Bradshaw,

¹ David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 227.
² Ibid., 231.
consisted of tights and leotards dyed in colors divided horizontally, or swabbed with sponge, with clear areas created by patches of masking tape that were than peeled off.

The piece was originally made, in its video version, for the full company including Cunningham and danced by Helen Barrow, Merce Cunningham, Victoria Finlayson, Alan Good, Catherine Kerr, Chris Komar, David Kulick, Patricia Lent, Karen Radford, Rob Remley, Kristy Santimyer, Kevin Schroder, Robert Swinston, Megan Walker, and Susan Quinn Young. In Points in Space Cunningham for the first time performed in his videodance work. The piece was divided into seven parts, with tempos alternating between fast and slow.

Cunningham and Caplan did advanced planning on this work. The rehearsals started in the Westbeth Studio and continued in London at the BBC studio, where the video was recorded. The first part of the program in which the piece was broadcast was a half-hour documentary on Cunningham made by the producer Bob Lockyer. This documentary focused on the creation of Points in Space. The documentary began with a shot of the studio in London revealing Cunningham and his dancers warming up. Then the camera focused on Cunningham, Cage and Caplan each doing his work. The camera even revealed another dolly camera, and followed its movements for a few seconds. It then revealed some interaction between Cunningham and Caplan and a voice that explains things saying, “by the end of the week even the camera danced.”

The documentary film of Points in Space was than shot in the Westbeth studio in New York. Some shoots of interviews with Cunningham were taken there. In the background there is a voice that talks about the making of a new dance and a short biography of Cunningham. Then there was some explanation on the collaborations for
Points in Space with Cunningham, Caplan, Cage, and the costume designer Dove Bradshaw.

The first section of Points in Space started with a wide shot of the set, showing three female dancers and two males all dancing together in different places on stage. One of the males stopped dancing, and stayed in a position on stage. Later he started moving and slowly changing positions. The other male dancers disappeared and appeared on the screen while the females were still dancing in a fast tempo. The male kept dancing, and another dancer posed behind the group who danced continuously. The dancers performed arabesques, attitude, passés, and battements with hands usually at the sides of the body. The camera was always moving: in different directions in the studio along and around the dancers. In the editing process, cuts were made whenever dancers were not showed on the camera, and parts of the sets or floor were shown. There are wide shots, mid close-ups and long shots, although usually the whole body was visible.

Another section of Points in Space began with two females and two males dancing slowly in two spots on stage. They performed passés, developés, attitudes, and arabesques. The hands were usually held at the sides of the body or in front. Soon, two other females entered the stage, each joining another couple and making two groups of three peoples each. The males in each group held the females, and soon all the dancers made a circle, holding hands while changing facing away from the circle. In this section most of the shots were long shots; moving continuously along with or around the dancers.

In 1991, Cunningham and Caplan made another videodance, Beach Birds for Camera. The music was by John Cage, the costumes by Marsha Skinner. The dancers were Helen Barrow, Kimberly Bartoski, Michael Cole, Emma Diamond, Victoria
Finlayson, Frédérica Gafner, Alan Good, David Kulick, Patricia Lent, Larissa McGoldrick, Randall Sanderson, Robert Swinston, Carol Teitelbaum, and Jenifer Weaver. The piece was filmed at Kaufman Astoria Studios and Industria Superstudio, New York.

In *Beach Birds for Camera*, Cunningham made use of LifeForms (to be discussed further in the next chapter). *Beach Birds for Camera* was a work for eleven dancers, without Cunningham. There was fluidity of movement and sections of varying length. As Cunningham said: “It is all based on individual physical phrasing. The dancers don’t have to be together. They can dance like a flock of birds, when they suddenly take off. They are not really together; they just do it at the same time.”

The piece is a study of nature based on Cunningham’s observations of birds and, for that matter, of people. It is rich in images as the dancers shimmer against the changing backdrop of color, moving from the blue of dawn to the golden noon:

I had three things in mind: one was birds, obviously, or animals or whatever, but also humans on the beach and also one of the things that I love so much on shores - the way you are looking at a rock and you go around it, and it looks different each time, as though it were alive too. Those there images are part of what I worked at. In dividing the structures the way I always do, I used those three things as something to think about…

---

3 Ibid., 258.

4 Ibid.
CHAPTER 5

COMPUTERS AND INTERACTIVE MULTIMEDIA.

The final use of technology by Cunningham to be examined in this thesis will be that of computers and interactive Multimedia. This includes the use of the three-dimensional (3D) human animation program called “Lifeforms”, and the use of the computer as a multi-media tool that enables movement to be explored in a novel way.

For Cunningham, continuing to explore new links between dance and the modern world led him to use and be part of the development of Lifeforms. An analysis of the first work Cunningham choreographed and developed with the help of a 3D human animation system, Trackers (1991) will be presented. In analyzing this piece, Cunningham’s use of the computer as a tool for creative choreography, documentation, and notation will be discussed using technical insight from both fields. The link between the process of working with Lifeforms and Cunningham’s early choreographic work with chance concepts will be analyzed.

The latest work of Cunningham created with a computer; Hand-Drawing Spaces (1998) will be discussed, including his collaboration with the digital artists Paul Kaiser and Shelley Eshkar. The creation of a new kind of choreographic form designed for the computer through infinite space will be studied, as well as the use of motion-capture technology and innovative animation techniques that were used to build that kind of
virtual event. The presentation of the dance by projection onto several screens and the movement of figures through the audience and around, infinitely extending the stage will be discussed.

In 1991, Cunningham made his first work Trackers using a three-dimensional human animation program called “Lifeforms.” The music, by Emanuel Dimas de Melo Pimenta, was called Gravitation Sounds. The scenery and costumes were designed by Dove Bradshaw. Trackers was a work for eleven dancers including Helen Barrow, Kimberly Bartosik, Michael Cole, Merce Cunningham, Emma Diamond, Chris Komar, Emily Navar, Randall Sanderson, Carol Teitelbaum, Jenifer Weaver, and Robert Wood. The first performance took place at the Merce Cunningham Dance Studio, on the 20th of March 1991. The title Trackers comes from a button on the dance computer called “track.” As Cunningham said:

> It also refers to tracking with a camera when you film. On the screen, the body moves in relation to the space, as it does on the stage, but if you press “track” you move in close, like a camera. The first thing I did on the computer was the walking sequence - so again it’s like “tracking.”

As early as 1989, Cunningham started using the Lifeforms computer software program, which allowed him to take dance into a new 3D dimension. Lifeforms was devised by Tom Calvert, professor of computer science and kinesiology at Simon Fraser University (SFU), Vancouver, British Columbia. Calvert collaborated with two SFU

\[\text{David Vaughan, Merce Cunningham: Fifty Years, ed. Melissa Harris (Aperture, 1997), 256.}\]
choreographers, Catherine Lee and Thecla Schiphorst, on a program that could help in the creation of dance.²

“Lifeforms” permits a choreographer to create movement sequences on a human-like figure made of concentric circles and to view it on screen from all sides. Another screen, with multiple figures, can show the overall patterns. As Cunningham said: "It's exactly like Petipa (the 19th-century choreographer of Sleeping Beauty), he used cut-out dolls, which he moved around on a table. With his eye, he would have realized immediately that this kind of thing was possible."³

In “Lifeforms”, the bodies of the preprogrammed figures are created using biomechanical models of an average human body, so in some way, human physical limitations and risk injuries are considered. Though the anatomical realism of this figure is not elaborate, movements and stances are shown in enough detail for Cunningham to visualize dance sequences. The software also suggests motions such as transitional movements between positions some of which Cunningham incorporated into his dances.⁴

From a choreographic point of view, Cunningham used the chance method in Trackers. To do this, a device was incorporated into the Lifeforms program. As Cunningham said:

Twenty-five or thirty percent of the movement was worked out on the computer in some way; sometimes it was just a stance, which I would put into the memory like a photograph. I would put in one, then another, and I’d have to figure out how to get from one to the other. At that time the capability of


making a whole phrase didn’t exist...the thing that interested me most, from the very start was not the memory - it wasn’t simply notation - but the fact that I could make new things...

Because Trackers was one of the earliest works that Cunningham created with the computer, a few sections, such as the one when the dancers formed into cells and clusters, were presumably not computer generated. One reason was that, with the early model of the “Lifeforms” program, no more than one figure could be worked with at a time. Nowadays this problem has been solved, but there is no doubt that the program needs to be improved and technical and economic challenges remain.

Cunningham has always been at the cutting edge of dance making, creating movement without music, using chance methods, and making video and filmdances. In Trackers, Cunningham realized that the use of technology such as “Lifeforms” (as well as film) allowed him to be inventive in terms of movement and movement:

I look at some things and say, “well, that’s impossible for a dancer to do.” But, if I looked at it long enough I could think of a way it could be done. Not exactly as it’s done on the screen, but it could prompt my eye to see something I’ve never thought of before...You might make a sequence with things in it that are physically impossible, but in the course of checking this out on the dancers...

The first section of Trackers revealed Cunningham standing in center stage. While standing at the same spot on stage, he started to make contraction movements until his head touched his knee. Then he slowly lay down on the floor, first with his body in fetal position; then stretched his body on the floor without moving. The close-up shot that was used at the beginning was changed to a long shot. Another female dancer

5 Vaughan, 256.

6 Ibid., 257.
entered the stage from upstage right. She made fast turning movements around herself while performing half a circle on stage, until she arrived at where Cunningham was. She made half a circle around Cunningham, bent and stretched her hands in a very fast rhythm. She then leaned on Cunningham’s shoulders while jumping on one leg in passé and continued making pirouettes. She left the stage and another male dancer entered the stage performing slow movements. This section has a surreal quality, as does the entire piece. People come and go without reason and actions take place unexpectedly. This is usually true of Cunningham’s work, but the surreal quality is exaggerated with the use of “Lifeforms.”

Because of the way Cunningham worked with Lifeforms, the movement had a very angular look, and it did not always feel as if legs and arms were coordinated. As David Vaughan said: “Cunningham’s method was to make the movements of the legs first, then those of the arms and upper body, and finally to put them together. He taught the phrases to the dancers in the same way.”

Cunningham let technology give him freedom and new possibilities: “People think if they learn something as technical and rigid as they think this is, that they’re losing something. I don’t think that way. I like the idea of adventure.”

Cunningham uses “Lifeforms” as a tool to enhance the creative process by providing additional ways to experiment with form and movement. As he said about Lifeforms, “it’s a tool with which I can experiment, but one never thinks of not using

---

7 Ibid.

8 Shapiro and Kuflik.
dancers in the work, they’re the blood of it."9 "Lifeforms" also offers solutions to some of the more mundane problems faced by a choreographer: the cost of rehearsals and the availability of dancers and studio space. By using Lifeforms, the user can also analyze movements the dancers do not actually make. Choreographers or teachers can change the orientation of movement in an animated rendering, and determine the exact modification that best achieves the goal.10

Lifeforms can be used not only as a tool for choreography, but also as a training tool for technique and performance. The program can allow specific movements to be isolated and viewed from several perspectives. For instance, if a dancer wishes to study leg motions during a particular sequence, the other parts of the body can be erased from the screen. In this way the user is no longer a slave to the viewpoint of the cameras as in video and film.11

The new and latest technological choreography project by Cunningham since 1998 is Hand-drawn Spaces. It is the first major work in modern dance where computer generated figures replace live dancers. The piece was choreographed by Cunningham, directed by Paul Kaiser, and designed by Shelley Eshkar. There is no music score for this piece, so that the life-size ‘dancers’ traverse the screens accompanied by the sound of their footsteps, their breathing, and Cunningham’s voice counting out the rhythm.

9 Ibid.


A New York based multimedia art group called Riverbed made Hand-drawn Spaces; it is an unusual fusion of visual and performing art.  

The piece uses advanced 3D modeling, motion capture, and animation technology to create a “mental landscape” in which hand-drawn figures that have been rendered and refined digitally dance in 3D to Cunningham’s choreography: The virtual dancers’ motion is driven by that of actual dancers whose movement was captured using an optical motion-tracking system. Optical motion tracking involves placing light-sensitive sensors on key points of the performers' bodies. Optical cameras as coordinates in a three-dimensional data set record the location of the sensors. Using the new figure-animation software Character Studio (created by Unreal Pictures and published by Kinetics for use in 3D Studio Max), designers applied the raw motion data to "hand-drawn" figures modeled in 3D Studio.  

As a special request from Cunningham, Shelley Eshkar, one of the staff members in the Riverbed group and the designer for this project, created a hand-drawn figure in 3D. Because Eshkar modeled the hand-drawn lines rather than applying texture-mapped lines onto another model, the figure could be viewed from any angle. He then applied a sample biped footstep motion - the Cha Cha - to make the figure dance. From that test, Hand-drawn Spaces was born. As the director Paul Kaiser said: “We wanted to create a


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
three-dimensional space that is expressive, inward and minimal, as opposed to the photorealistic yet synthetic look typical of most 3-D computer graphics."\textsuperscript{14}

In an interview with the Riverbed group, the group members said that there were many challenges that stood in the way before the dance \textit{Hand-drawn Spaces} was performed. The first one was to get the right look for the figures so they will look like hand-drawn lines from all angles, and also could be manipulated to move in vertical and circular pathways. The fact that the dancers were wearing protruding motion-sensor spheres was another challenging limitation, because it meant they couldn't make contact with the floor in certain ways and that certain motions might break or make false collisions.

In the same interview, Paul Kaiser said about Cunningham and his work on \textit{Hand-drawn Spaces}:

What's interesting about Merce's approach to choreography is that he likes to work within formal constraints. For example, he notes, there was room for only 15 consecutive steps to be captured, so [Cunningham] made phrases ranging from five steps to 15 steps, numbered them accordingly, and made up a whole system based on that... Once he had all 71 phrases, Merce could put any of them together to make sequences. We used a feature of Character Studio's motion-flow network that allows you to place any number of clips together and join them. When you join them in a single pass, [the program] makes automatic interpolations between motions that you can then set preferences for. So, If you have two different phrases, you can say you want the transition to occur when they're both in mid air, or you want the transition to occur based on the positioning of the left foot and so on... This method of composing produced interesting results. Even though the virtual dance obeys physical laws of motion—nothing the virtual dancers do is impossible, and the way the basic phrases are sequenced does not introduce any physically

impossible motion—Merce suspects that the complexity of the phrasing is such that a dancer couldn't do it mentally.  

Hand-drawn Spaces was premiered at the Electronic Theater of the Siggraph conference in Orlando, Florida, in July 1998. Its presentation involved projection of the virtual dancers as life-size drawings that emerged from the darkness and moved in three-dimensional space. The projection was made onto multiple giant screens lining the walls of the performance space. The virtual dancers were visible on the screens and moved through a large virtual area, traveling from screen to screen.

The piece is interactive for the audience. The audience has to mentally participate in making it happen: first because the figures are abstract and often invisible, second because of the perceptual ambiguities introduced by the drawing style. In the computer version of Hand-drawn Spaces, illustrated on Cunningham's web page (available through the Internet at http://www.Merce.org), the audience can improvise a composition in which the dance itself emerge from a set of rules.

From a choreographic point of view, by blending technology and the art of making dances, Cunningham created a new form of dance. As Cunningham himself said: “For me it's about discovering something new, so I don't stay fixed in my own ideas.”

What he sees in the figures on screen helps him discover unique movements and

---

15 Diana Phillips Mahoney. “lets dance; virtual dancers in Riverbeds Hands-Drawing spaces combine expert choreography and digital technology”, Technology Information, 21, No. 5, 73.

16 Daniel, Goldstein, and Hamilton.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
combinations. But, he knows that the machine could never do the creative part. "The computer is a tool, not an end in itself."\textsuperscript{17}

\textsuperscript{17} Ibid.
CHAPTER 6

SUMMARY

Art and technology have been linked since the dawn of man. Early man used technologically innovative tools (such as knives, hammers, and sores) and different kind of machines; Cunningham has now integrated media and developed innovative digital tools into his work. Art expands human conscience and sensitivity. Technology expands human power. The arts and technology have coexisted for centuries, and over the years the arts have been affected in various degrees by machines and tools. Artists, in fact, have often been creators of new technologies, refusing to be satisfied with currently available tools.

At the close of the second millennia, technology is advancing at an explosive growth rate. This thesis examined the integration of Cunningham's work with technology to expand both his own creative approach to choreography, as well as the way the audience perceives and interacts with the "product" of his choreography – in-essence creating a totally new experience of the art of dance. Video, film and computers were used in his work as supportive tools in the creation, recording and interpretation of dance. The evolving of Cunningham's use of technology; his learning process, creative process and methods used to create the dances, and his research and experimental processes were examined in this thesis as well.
Cunningham made a documentary film of the work Storv, which was created through chance methodology and was analyzed, in the first chapter of this thesis. It is not a documentary film in its common meaning, but does document a dance performance. Cunningham himself knew very little about the film medium when this was made in 1963; he was hardly involved in the filmmaking process. The film was shot in the traditional way of presenting dance performance; there is no shaping of materials or manipulation of photographic images.

In the second chapter the videodance collaborations of Cunningham and Charles Atlas were analyzed. In the late 1960s and early 1970s, affordable video equipment made its way into the lives of dance companies, including Cunningham's dance company. Easier to use than film, video becomes a vital part of everyday operations, recording the earliest rehearsals of a piece through to its finished performance. For Cunningham, it was an important learning process of how to use the video equipment and how to incorporate the video media into his choreography.

In Westbeth, while working with the video medium, Cunningham choreographed especially for the camera, a concept that was innovative and experimental at that time. Moreover, the dancers looked at and performed for the camera during the whole piece. Atlas was a creative experimental filmmaker, and a guide for Cunningham. In Westbeth, at some points there is no more dance per se, but abstract images and the creation of a new form of visual movements that can be seen on a TV screen. The use of the video media made it possible to show intimacy during the dance by focusing on different body
parts and facial expression. The camera itself is mobile and reveals different and unusual angles of the dancers' movements and body parts. The use of video in dance such as Westbeth also provides immediate feedback and compositional perspective of a dance.

In the third chapter, the experiments of Cunningham and Atlas with filmmaking focused on experimenting with moving cameras and innovative film techniques such as changes of focus and complicated editing processes. In Locale, Cunningham emphasized the dance and his choreographic concepts and movement, in comparison to exploring the video medium in Westbeth. In Locale only a few shots reveal facial expression and almost no intimacy can be seen despite the use of the camera. Cunningham's field and multidirectional approach to space and a non-linear approach to time were taken to their extreme through film. The camera, while moving, explored different dancers at different spots from different angles. Moreover, the dancers faced different directions in space.

When comparing Cunningham's videodance pieces (such as Westbeth) to his filmdance pieces (such as Locale), we must distinguish between film and video as media, as there are enormous different in the quality and production/editing process. Light, darkness, and depth perception work completely different. There is a problematic relationship between the cinematic image and the dance as we experience it in a live performance or on screen. Cunningham combines the two mediums resulting in new orientation of movements and audience perspective.

The fourth chapter brings insights from the videodance collaborations of Cunningham and Eliot Caplan. Cunningham took to its extreme his innovative approach of time and space concepts, and their use in the art of making videodances. In Points in Space Cunningham realized that the camera has different points of view than the open
stage. In his videodance *Points in Space*, first he created the movement, than he checked how it worked on the camera and adjusted the camera if necessary.

In the last chapter of this thesis, Cunningham's uses of “Lifeforms”, computer animation software and interactive multimedia was analyzed. “Lifeforms” provides a 3D interactive graphical interface that enables Cunningham to sketch out movement ideas in space and time. By using “Lifeforms”, Cunningham was able to create new forms of movement. To quote Ben Shahn, “Form... is the visible shape of all man’s growth; it is the living picture of his tribe at its most primitive, and of his civilization at its most sophisticated state... Form is the very shape of content.”¹ Dance is at once a traditional expression of unique culture and an evolving form of art in dialogue with modern form and content matter.

The appearance of digital visual media has expanded and enriched the possibilities of both creating dance and conveying it to the public in ways hitherto unimagined. The author was afforded insight into Cunningham’s use of “Lifeforms”, and learned how working with the software and the video can affect choreographic methods, extend the imagination, and expand the art of making dance. With “Lifeforms,” the author created movements and sequences for the main phrases of her choreography, then the choreography was made into a videodance.

For the purpose of learning, exploring and experimenting with the video media, the author made a video production called “Art and Artifact: The Digital Option.” The

project was supervised by Prof. E. Scott from the School of Communication of American University, Washington, DC. It gave the author the opportunity to briefly explore the digital world of video and the part it can play in choreography. The author learned about digital technology that can serve as another art media, or be used as a tool to make dance, preserve it, and make it accessible. During the making of this project, the author explored and experienced the technical perspectives involved in translating the choreographic vision into digital images. The specific aims of the study were:

1. To learn basic concepts of composition for camera, which are influenced by camera placement and lighting design (light meters and lighting equipment like base and key lights, fill light, shadow and highlight illumination ratio). Stage light is often too dim in total light, yet contains very bright parts which are heavily saturated with color, and this is often a problem for the video camera. The dynamic range of the human eye (the ability to discern between shades and hues under different amounts of light) is much larger than that of film or video; thus the effects choreography are intended to have on a live audience by the use of extremes of motion and lighting makes the translation into video difficult. Conversely, when one is choreographing specifically for video, the dynamic range appears initially more restricted to enable a better capture on film, but is later enhanced and changed at the editing stage. The same ideas apply to audio design, where control can be obtained by specific use of microphones and mixers and can later be modified through editing.

2. To view the composition from all angles by changing camera placement (a BetacamSP was used).
3. The implementation of kinetic and dynamic controls in video editing, using the Media 100 software. Areas that were specifically explored included visual continuity, different speeds and directions (e.g., backward playback), change of movement sequences, the relationships between dancers, and the use of movements against gravity.

4. To learn and explore the technical and creative aspects of producing a professional on-location videodance and a documentary of a live dance performance:

This project provided the first-hand knowledge and insight necessary to analyze the works of Merce Cunningham with video and Lifeforms.

The making of Trackers is an example of an ongoing process of exploration in work with computer technology. The development of a computer tool for the creation of dance provides several research challenges; "Lifeforms" is only one example of a model of dance design process. By using "Lifeforms," the spatial relationships, energy flows, overall shape, and how the body moves in relation to its parts in the choreography look somewhat different than in previous works of Cunningham. In Trackers, the movement had an angular look, and the arms and legs looked isolated from one another. "Lifeforms" expanded his choreographic process, choreographic imagination, and possibilities for creation of new movements. Improving "Lifeforms" by enabling movement to be sampled in real-time and stored within the program, and by enabling facial animation and rendered bodies, dance has enormous new potential.

The use of interactive multimedia contributes to the creation of a new kind of choreographic form designed for computer through infinity’s space and motion-capture.
techniques. This use of technology can be expanded and developed, because it stimulates
the audience and creates a conversation between the audience and the dance.

Whenever art has met technology, the artist has met the technological expert. In
no place is this truer than in the work of Merce Cunningham, who, throughout his
endeavors, collaborated with people who’s know how contributed to his expanding
horizons. From personal experience, this researcher has found it impossible to be one’s
own choreographer, dancer, cameraman, editor, producer, and computer-science expert;
nonetheless, without a basic conceptual and practical understanding of these facets one
cannot create in these new and exciting media.

To conjure the power of video-dance, an art form intuitively obvious to any two
year-old today, required visionary insight thirty-five years ago. In tracing the
development of Merce Cunningham’s art of choreography one sees how the basic human
vocabulary of movement can come to comprise such varied artistic experiences, from
limited participation in a theater production, through the much more intimate but passive
film-dance and video-dance, to the seemingly endless variations made possible by
interactive broadcasting of virtual-reality.

Videodance can be a valuable resource for scholars, researchers, teachers, and
dance masters as a notation system, as a major method of dance preservation, as a
creative medium that can expand the dance world and the choreographic process. Video
can effect audience sensibilities— it has speedy impact, discontinuity, and instant
gratification.
Cunningham is a mentor and inspiration to generations of dancers and choreographers. His work has increased public awareness in use of technology in the creation of dance, and has changed the face of dance.
BIBLIOGRAPHY

Publications


Videorecordings


____. **Channels / Inserts.** Recorded by the Merce Cunningham Dance Foundation, New York. 32min., 1982. Videocassette.

____. **Points in Space.** Recorded by the Merce Cunningham Dance Foundation, New York. 27min., 1986. Videocassette.

____. **Trackers.** Recorded by the Merce Cunningham Dance Foundation, New York. 60min., 1993. Videocassette.