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Technique Arms The Imagination Developing An Acting Theory Best Suited For Motion Capture Performance And The Creation Of A Virtual Character

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"TECHNIQUE ARMS THE IMAGINATION"
DEVELOPING AN ACTING THEORY BEST SUITED FOR
MOTION CAPTURE PERFORMANCE AND THE CREATION OF A
VIRTUAL CHARACTER

by

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ABSTRACT

"The untrained body, like the sculptor's marble, can express nothing but its own limitations" (Lust 70). As acting styles have changed through the years, corresponding schools of thought have arisen to prepare performers for their unique challenges. Perhaps the goal of producing a "gripping performance," one in which the audience is truly invested, has remained the same since the time of Thespis. How one arrives at this desired result, however, has varied greatly through the ages. Techniques, not surprisingly, tend to build on previous theories, beliefs and practices. Étienne Decroux's corporeal mime technique builds on the teachings of Jacques Copeau, but as a result, takes the art form into a radically new direction. Vsevolod Meyerhold studied with Stanislavski, learning his inside-out approach to performance, and, with biomechanics, creates a performance technique that turns Stanislavski's approach on its head. The point is not that these theorists developed something that undermines the previous work, but that they built their theories from knowledge of older techniques. In essence, these theorists learned from the past to prepare for the future. Advancements in film technology have dramatically changed both the nature of film, and performance, itself. Computer-generated characters and environments are becoming more commonplace in film due to the flexibility they provide in composing shots, and the relatively low price tag that comes with them. Technology still can't replace the subtlety that comes from a human performance, so currently, actors find themselves in the unique position of having one foot in the real world and the other foot in the virtual world. The motion-capture process, or moCap, is the best example of this unique relationship. By placing sensors at key joints on an actor's body, their performance can be tracked by a computer and then directly applied to a computer-generated model (Hooks 30). In a

sense, it's digital puppetry. Because only the movements are being recorded and not the actor's

physical appearance, performers can play parts that are not necessarily their physical type or

even their own species. Director Peter Jackson cast Andy Serkis to play a forty-foot-tall ape in

the 2005 remake of *King Kong*, and thanks to the motion-capture process, the result is a perfect

blend of live acting and computer-generated graphics. The relatively low cost and flexibility of

this process has made it available, not just to filmmakers in Hollywood, but also to the

independent market. I am currently directing a feature length film that utilizes both computer-

generated backgrounds and virtual characters accomplished through the motion-capture process.

This production has been in the works since I started graduate school. As I learn more and more

about specific acting techniques in class, I am always looking for something that I could apply

specifically to motion-capture performance. Currently there is little research on the topic and

certainly, there's no specific acting theory that applies to this medium. In this paper I hope to

formulate an acting technique that is tailored for the field of motion-capture performance,

building upon theories of the past. Further study in this technique will better prepare future

performers in this field, as well as provide insights for directors new to the medium. The

following three techniques in particular, each with their emphasis on an outside-in approach to

acting, will provide the basis for this theory: Meyerhold's biomechanics; Decroux's corporeal

mime; and Edward Gordon Craig's uber-marionette concept. I will provide detailed sections on

each one of these approaches, discussing the theoretical sides of each, as well as specific

exercises students in these schools are asked to perform. Next, I will provide a detailed section

on the motion-capture process, discussing how it works and the challenges it presents to

performers. Finally I will apply each one of the three theories to the motion-capture process,

finding points where the theories apply and also where they fall short. By choosing specifically

what applies to the moCap process from each one of the techniques, we will be left with a new

theory that specifically relates to virtual performance. This will not only serve as an invaluable

guide to both future performers and directors entering the field of motion capture, but will

hopefully be the beginnings of an acting theory that can bring performance education programs

into the 21st century. Working in the virtual realm requires a performer to use his imagination,

but having training and knowledge in theories of the past will mean the imagination is not the

only thing actors have to work with.

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INTRODUCTION

The initial inspiration for this paper came from a personal film project, *Flashback*, that utilizes both computer-generated backgrounds and virtual characters accomplished through a process very similar to motion-capture. In addition to directing the piece, I played the part of a hungry Velociraptor, which would be achieved through a combination of my movements and 3D computer graphics. Through the course of my graduate studies I have learned a great deal about specific acting techniques and acting theories. Acting techniques encompass schools of thought on how to perform, and acting theories involve ways to define and view the art form of performance. At the time of making the film, no specific acting theory or technique existed for the motion capture medium, which made the production quite frustrating at times. In this paper I hope to formulate the beginnings of an acting technique that is tailored to the field of motion-capture performance, building upon techniques of the past and my personal experiences with the technology through the making of the film. In addition, due to the field's unique acting challenges and requirements, I will try to generate an acting theory that helps define the genre and offer a rubric covering how a performer should work within the art form. This paper is the beginning of an ongoing dialogue to prepare future performers in the field, as well as provide insights for directors who are new to the medium.

The following three techniques in particular, each emphasizing a presentational outside-in approach to acting, will provide the basis for this theory: Meyerhold's biomechanics; Decroux's corporeal mime; and Edward Gordon Craig's uber-marionette concept. Each theory not only provides general insight that is crucial to success in the motion capture medium, but

each theory, in my opinion, also seems to be intrinsically tied to the next. I will provide detailed sections on each one of these approaches, discussing the technique each field espouses, sighting specific exercises students of these fields are asked to perform. I will also discuss the theoretical differences between the philosophies, and how the art form of performance as a whole is viewed within each school of thought. Next, I will provide a detailed explanation and history of the motion-capture process, discussing how it works and the challenges it presents to performers. I will then apply each one of the three theories to the motion-capture process, finding points where the theories apply and also where they fall short. Finally, I will include personal experiences on the set that provide a practical application of these theories/techniques in action. By choosing specifically what applies to the moCap process from each one of the philosophies, we will be left with a strong base on which to build our new theory. It will be a combination of critically analyzing these schools of thought and assessing practical experience on the set that hopefully will leave us with the beginnings of an acting technique and theory that specifically applies to the creation of a virtual character. Knowledge of this technique will prove invaluable to both performers and directors who wish to enter the motion capture medium. In this respect, this paper serves as a practical guide for actors and directors of the 21st century. The paper also provides the groundwork for an acting technique/theory that can be taught in classes and programs that focus specifically on motion capture performance. As time goes on, we must recognize that experience and knowledge in this field may be the difference between employment and rejection for an actor. We must also recognize that acting educators are not doing their students any favors by ignoring this field in the classroom. As Sir Francis Bacon

once said, "knowledge is power." Hopefully this paper will serve to level out the competitive

acting field.

BIOMECHANICS

Vsevolod Meyerhold claimed that, **"**by correctly resolving the nature of his state physically, the actor reaches the point where he experiences the excitation which communicates itself to the spectator and induces him to share in the actor's performance: what we used to call 'gripping' the spectator. It is this excitation which is the very essence of the actor's art" (Braun 166). "Biomechanics," developed by Meyerhold, is a theatrical acting technique that develops the connection between the physical and psychological components of an actor's body. It is this special connection that provides a performer the ability to create a "gripping performance." When an actor masters this technique and applies it to his or her performance, Meyerhold claims the end goal of "gripping an audience" or emotionally investing them with their performance can *always* be achieved. It is my belief that biomechanics is specially suited to motion capture performance, given its emphasis on the physical performance of a character. It is through physical mastery of a character that a performer begins to conquer the psychological complexities of the character as well. Meaning, the performance of the proper physical actions of a character will in fact elicit the appropriate emotional and psychological responses. "We need to understand the character physically as well as psychologically, in order to *consciously* express the ideas of the author, and . . . *consciously* relate to the play and the public" (Braun 65).

Meyerhold began developing this technique in 1906 during his production of Alexander Blok's *The Fairground Booth*. During the turn of the century, symbolism dominated the avant-garde art scene. Symbolism is an approach to theatre that attempts to represent absolute truths through indirect means, endowing images and objects with symbolic meaning. Meyerhold

initially aimed to present *The Fair Ground Booth* in a symbolic style, staying true to the

mandates of symbolism, straying ever so slightly when it came to the actions of the performers.

However, what started as a minor departure erupted into the complete destruction of staged

Symbolism. This production signaled Meyerhold's rejection of mysticism in the theatre, and, as

Erast Garin said, "the liquidation of the awe-inspiring shamanistic aura surrounding the art of the

actor." An actor's process, according to Meyerhold, should not be one of spiritual like

discovery, but rather one of mechanical precision.

Meyerhold drew his ideas from the principles of commedia dell'arte, which used the

grotesque as an artistic principle—grotesque meaning the bringing together of matters, actions,

and ideas, which are not thought to naturally coexist, similar to arriving at a highly emotional

state through cold repetitious biomechanics training. Meyerhold enjoyed the idea of mixing

genres as well, and wished to develop an acting style that could prepare a performer for any style

the actor might come into contact with (Hodge 38). Many of Meyerhold's contemporaries,

including Stanislavski, viewed the more "theatrical styles" of performance (circus style

acrobatics, pantomime, etc.) in a negative light, and largely ignored these fields when it came to

developing technique. Meyerhold was one of the first to embrace these genres with an acting

technique tailored toward their unique acting challenges. Basic movement principles that

Meyerhold adhered to, such as proper balance and posture, are easily things applied to more

traditional forms of performance as well. Thus Meyerhold's school of thought could really be

applied to any form of acting. Meyerhold's technique, which seemed to encompass a large array

of styles, was not one easily learned, but rather something that would take years to master. As

Meyerhold put it, "an actor must study as a violinist does, for seven to nine years. You cannot

make yourself into an actor in three to four years" (Bentley 108). Meyerhold believed that every form of art is the organization of its own material. "In order to organize his material, the actor has to have a colossal reserve of technical resources and training… because unlike other artists, the actor is at one and the same time the material and the organizer" (Hodge 39).

At his studio on Borodinskaya Street, under the false name of "Doctor Dapertutto," he experimented with the interplay of character motivation and the actions of a performer. Meyerhold also conducted much research during this period, drawing ideas for his theory not just from Renaissance Italy, but also Eighteenth- and Nineteenth- Century France, Shakespeare's England, China, and even Japan. In 1921, Meyerhold moved to Moscow and opened his own acting school, which operated under the beliefs of his newly acquired acting theory. Due to the theory's connection with a "technology of the body," Meyerhold labeled the technique biomechanics. Meyerhold continued to adapt, refine, and demonstrate the biomechanical system until his death in 1940 (Hodge 38).

Biomechanics requires a special course of study in which the actor, based on the study of the natural movements of man and animals, works out the specific abilities and habits essential for professional work on the stage. According to Meyerhold, the technique operates under the principle that, "if the tip of the nose works, so does the entire body" (Lavi 135). That is to say, the entire body must work together, under the least amount of tension possible, in the performance of any physical movement. Furthermore, the actor, as a true master of his craft, must be mentally aware of every action his body makes. Nothing is left to chance, and every movement, no matter how insignificant, is a conscious act. In Meyerhold's words, "we are teaching the body to think" (Braun 175). It is through the repetition of certain acting exercises

that a student of Biomechanics achieves this physical/mental mastery. It is only when actors

achieve control of their bodies, or as Meyerhold calls it "scenic movement," that they can use the

stage space and interact with their fellow actors properly, in the pursuit of a gripping

performance (Lavi 133).

Work in the biomechanics is carried out on two levels; the *theoretical* and the *practical*.

The theoretical portion largely consists of learning to view all living bodies as well trained

"machines." That is to say, in the execution of any action, all the parts of an organism's body

must work together and perform their proper actions at the precise time. Otherwise the action

cannot be carried out successfully. Walking, for instance, requires the use of one's legs, but also

requires the exact positioning of one's feet when they hit the ground. One could argue the

position of one's head and arms also plays a pivotal role in the balance of one's body while

walking. Keep in mind, all these actions must be executed at the proper time, otherwise the

action, as a whole, will not be successful. Students of biomechanics are asked to study the

movements of a specific animal, and pay close attention to how each part of their bodies is used

to achieve a specific action. The movements of an animal, and the timing of its movements, will

obviously be different from our own, but in observing these differences, the animal trains the

student to pay attention to his/her own body. Once an actor is trained in this manner of thinking,

they can begin to establish certain laws of movement that will be essential to performance

settings. It is in this practical portion of Biomechanics training in which the actor will put these

laws to use (Lavi 150).

The practical portion of the training consists of a series of exercises. These exercises will

vary from simple individual movements, like walking, to much more complicated movements,

like coordinated acrobatic group movements. According to Meyerhold, "the beginning goal of the student is to achieve equilibrium of the body, in which movement occurs smoothly and naturally" (Braun 189). The actor will be successful only if he is fully aware of his body and surroundings, while keeping the body void of stress. Even the simplest exercises, that at first glance seem only to increase physical capacities such as strength, agility, coordination, balance, flexibility and endurance, become acting exercises because of the thought process involved. Thus while students run, jump and work every muscle and joint in a maddening array of exercises during the initial physical training phase of the work, they are already required to be continually aware of their relationship to the space and to the other actors in their "ensemble," as well as their own "inner movement." As the training progresses, the actor's moment to moment awareness expands and deepens. The actor now has a concrete methodology which provides answers to basic acting challenges. These challenges are overcome through the calculated actions of a performer. This is contrary to the inside out approach to acting where the psychological/emotional state of an actor guides her through specific acting challenges. This phase of the work culminates in the study of the Classical Biomechanical Etudes (Lavi 142).

Etudes are essentially mime-like exercises, in which an actor will perform a specific task without the aid of props. The etudes are basically movement scores, or a series of movements, that in a way, perform a specific activity. They must convey to the audience the weight of the object they hold in their hands and the amount of effort it takes to perform that task. Tasks range from shooting a bow and arrow to making a sandwich. During the theoretical portion of the training, students of biomechanics have intently observed what muscles are used and to what degree, in the handling of different objects. They will call upon the aid of their specially trained

muscle memory in order to truthfully convey the task to the audience (Zarilli 79). The etude demonstrates to the student that even with the least gesture of the hand, the student's entire body is affected. This is what Meyerhold calls the "Principle of Totality." Specific movements of the body must happen at exact times, otherwise the performance will be unsuccessful.

The movements and timing of the body are broken down into what are referred to as "acting links." Acting links consist of specific beats of any movement; these beats are referred to as *intention*, *realization*, and *reaction*. The intention must be clear from the beginning, as both a signal to the other actors, as well as keying the audience in to what is happening on stage. As Meyerhold put it, "without intention, both the performer and the audience are lost" (Braun 169). Intention, in early acting exercises, begins with the actor clapping his hands twice, and ends with the moment the actor spots his target. Realization takes us through the movements of performing the specific task. The reaction occurs when the actor has successfully performed the task, and demonstrates to the audience how she feels about that task. Any movement on stage can be broken down into these categories.

Each of these movements is comprised of four distinct parts: otkas (refusal), posyl (the sending), stoika (stance), and tormos (brake). The otkas is the movement in preparation of the action itself and is manifested in a movement in the opposite direction, like the pulling back of a spring. The posyl is the actual execution of the intended action, set up by the otkas. The stoika is both the completion of the movement, or the coming of the halt, as well as the starting block for the next movement in an étude. The tormos demonstrates the "brake" or "resistance." Meyerhold describes it as that which helps the body to move in a fluid and controlled motion through all stages of a movement. The actor who does not utilize tormos will appear sloppy and

unmeasured, and as Meyerhold put it, "without precision" during the otkas, posyl, and stoika (Bentley 31).

In the performance of an etude, it is important for the actor to remember what movements are necessary, and what motivations are needed to successfully move into the next category. It is also important for the actor to remember that every movement must be justified; even the slightest movement of the hand is considered a conscious act on the part of the actor. Performers must understand that each movement, no matter how slight, communicates something to the audience. The players must be certain that what is being communicated to the audience is the intended meaning, otherwise you may lose the audience all together.

This sequence, the chain of acting links, will make up the role and constitute the actor's performance. If the sequence of intention, realization and reaction is always well planned by an actor, a truthful performance can be achieved every time. By "well planned," that is to say that Meyerhold does not wish to convey that the process is simply a cerebral one. Clearly, planning or thinking through the sequence, is required, but the focus for Meyerhold is primarily on the repetition of physical movements. Physical repetition creates muscle memory, so what a performer truly relies on is not thinking through the process on an analytical level, but rather going by what "feels right." According to Igor Ilyinsky, one of Meyerhold's most impressive actors, "if the physical form is correct, the basis of the part, intonations, and the emotions, will be as well, because they are determined by the position of the body (Cole 154). Planning, and preparation for the role, in the Meyerhold sense, is achieved through physical repetition.

The final stage of *reaction* has everything to do with the behavioral patterns of the character the actor is playing. "You must understand your character's psychological state, and

this is achieved by understanding how a particular character would move and interact on stage" (Braun 171). Whether a character has a limp, or is physically strong, or has one leg, will obviously have an impact on his psychological state. Once clear on the movements of the character, the actor can better estimate his reaction to any task performed on stage. This is what is known as an outside in approach to acting, letting the movements one performs affect his or her psychological state. As long as the actor keeps an understanding of a particular character's movement and always thinks through the acting links of intention, realization and reaction, a truthful performance will be achieved (Lavi 140).

Upon first glance the movements of a biomechanical etude may appear overly melodramatic. Etudes, like "the stab" or "the dagger," seem like they literally could have been ripped from an old silent film. This could raise the question of how this overly dramatic style of performance could be used by actors charged with the task of creating something a bit more subtle and realistic? If Biomechanics is a technique that truly can be applied to all different types of performance, why does Meyerhold seem to focus so much on "over the top" movements that presumably have no place in traditional "realistic" performances? What readers should keep in mind is that while formulating this theory, Meyerhold was battling naturalism, a form of theatre that attempted to create a perfect illusion of reality. Naturalism places stories in the "here and now" and never ventures off into otherworldly or fantastic locales. Meyerhold hated the restrictions that naturalism placed on theatre. He wanted actors who were prepared to do anything on stage, and wouldn't back away from a choice simply because it seemed odd. Meyerhold believed that "truth" can be found in all different types of performance, even in unrealistic, exaggerated actions, and that arriving at this truth on stage is a very different process

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than how we achieve "truthful moments" in real life. Building upon this claim Meyerhold's "Theatre of the Grotesque," says, "art and life are completely different, and should make no attempt to *imitate* each other." Imitation here does not refer to the end result (the emotional response or performance of an activity) but rather the means by which we arrive at that result (Hewes 69).

If Meyerhold prescribed a physical activity, the actor must perform it and derive the inner emotional response from the physical activity he was performing. He used the equation "$N = A1 + A2$" to help explain this concept. In the equation "N" stood for the desired emotional response, while "$A1$" and "$A2$" would stand for specific physical actions. Thus the performance of an action ($A1$) plus the performance of another action ($A2$) equals the desired emotional response (N). Implementing a physical action to arrive at a specific emotional response may seem odd at first, but Meyerhold would point out that the $N=A1 +A2$ equation occurs frequently in our daily lives. The bouncing up and down of your leg may cause you to become anxious; jogging or working out may make you happy; and the physical act of screaming may make you frustrated. There are ingenious countless physical activities that trigger specific emotional responses. For Meyerhold the repetition of physical movements is much more reliable a means of reaching an emotional response rather than the dependence on an actor's psychological state. If the process becomes too cerebral, it can venture into imitation territory and read as "fake" to the audience. The actor is trying to appear sad rather than actually being sad. The physical actions make the emotions real because the actors are actually experiencing them (Bentley 33).

During a scene consisting of a large group of people, the actor must occupy his own place, planning it in relation to all of the partners. To give free reign to movement, and not

recognize the actor's particular space on stage, can result in chaos, which will not be pleasing to the audience. Meyerhold claims that quick sight estimation is all that is necessary to form exact calculations as to how far one can move about the stage. There are schools of thought that argue an actor must first explore the space in order to experience its limits. They would say a simple sight estimation of the space would not suffice, and that the performer should be given ample time with the stage to explore the boundaries and limitations of it before performing. However, Meyerhold argues, that to see his theory in practice, one need only look at how people walk in heavily populated urban areas. When walking through a crowd of people in New York, people know instantly just from a few glances, what space they can occupy without getting into another person's way. If we didn't have this capability, walking through crowds would be impossible. "We already posses this exact eye," Meyerhold explains; "we only need to translate this instinct into practice on stage." In this respect, the actor will organize his/her acting links, to perform a particular task, to fit the space available (Bogdanov). After some time with the exercises, space estimations with the eyes will no longer be necessary. Actors in a sense will be able to "feel the stage," and simply know through muscle memory how close or how far away they have to be in a given scene.

Just as music is always an exact sequence of measures, which do not break up the musical whole, so the principles of Biomechanics serve to successfully unify an actor's performance as a whole. These principles must be properly organized by the actor to fit the particular acting assignment at hand. If the actor is always consciously aware of his/her environment, body and the other actors that share this space, there is no acting challenge that can overwhelm that individual (Braun 64).

CORPOREAL MIME

What Étienne Decroux called *mime corporel* ("body" mime) is mime in the strictest and purest sense. Feelings and ideas are depicted uniquely by the body as a whole. It is free of imitating real actions and aims for a more universally poetic expression. For Decroux, corporeal mime frees an actor from the shackles of realism, opting rather for something that defies the limitations of the human body. Bodies are no longer imitating the outside world but are rather full participants in it, allowing for nothing short of a completely "gripping performance," one in which the audience is truly invested. Both fields, mime and motion capture performance, require the actor to illuminate for the audience that which is not visible. They are both operating in a virtual realm, so to speak. Performers in both fields do not have access to props or scenery and must communicate ideas solely through physical movements. Only through the actor's performance can we, as the audience, ever hope to invest in either of these virtual worlds. No amount of theatrical décor or fancy CGI can make an "untruthful" performance "gripping." It is my belief that training in Decroux 's corporeal mime technique is essential for a motion capture performer to create a truly "gripping performance" for audiences, thus making that, which is simply virtual, real. It is, as Decroux puts it, "the revelation of the unseen world" (Lust 69).

From 1923 to 1945, Decroux was an actor on the stage and in cinema. His roles included characters in Aristophanes, Shakespeare, Ben Johnson, Moliere, Tolstow, Stridberg and Pirandello. He was directed by Jacques Copeau, Louis Jouvet, Charles Dullin, Antonin Artaud and Marcel Herrand. With such a varied and rich career as an actor, his first love and major contribution was to mime. "It was in 1923, at the school of the Vieux-Colombier of Jacques

Copeau, that I encountered corporeal mime. The essentials of this art were there. It remained to enrich it through divisional rules, to extend its objectives, to define its limitations" (Cohen 80).

Jean Dorcy, also a pupil of Ecole du Vieux-Colombier, said of Decroux: "I do not know which sculptor first adorned a lawn, a path or a square with a statue, thus separating sculpture from architecture. I do know that the autonomy of the Mime has just been achieved thanks to the personal efforts of one man: Étienne Decroux" (Dorcy 82-83). What was unique in Decroux was that he was seeking an autonomous art form: "the Mime." Decroux aimed to perfect the physical expressivity of the total body. The illustrative nature of pantomime, the reigning form of mime at the time, would not suffice for Decroux. "Like the French poet Charles Baudelaire, the mime-actor through physcial images, would *suggest* rather than tell a story" (Lust 69). Pantomime, Decroux felt, was a form of bodily expression where the face, aided by the hands, had primacy over the mass of the body. Decroux changed this in his new mime: the body first, arms and hands next, and finally, the face. The "trunk" is the largest organ of expression of the body. In everyday life people use their face, arms and hands commonly as mediums of expression. What elevates this type of movement is that which Decroux terms the "double impression of having already seen and not yet seen the same thing" (Cavefors 102). In real life, the movements of the soul are accompanied by the movements of the face and arms: smiling, frowning, embracing. An art, however, cannot be merely natural. Decroux wishes "to offer my whole body as a companion to my spirit" (Gelabert 66-67).

The mime-actor's function, for Decroux, was to discover within himself and with his technique, the "poetic sources of his art and express them as such. Decroux called it "creating poetry anew" (Zarrilli 51). His objective was to find, through his body's movement alone, a

pure, self-governing expression of a complete dramatic form. This movement would be light-hearted, rhythmic, and could evoke poetic movement images in the spectator's imagination, convey clearly imagined settings and would be completely without aide of theatrical décor, makeup or music, the latter two of which pantomime used extensively. Through these movements the performer could "evoke the concrete by the abstract and the abstract by the concrete" (Lust 75).

In his production of *L'Usine*, for example, Decroux depicted the movements of one factory machine, but through the mechanical rhythm of the movement, this one factory machine was for the audience's sake in fact to represent all factory machines. The performance also gave a real sense of place solely through his physical actions. Audiences weren't simply imagining a setting for the story to take place but rather were imagining precisely what Decroux wanted them to see. His actions essentially were painting the landscape (Broadbent 47).

Decroux considered the attitude or general disposition of a mime as a condensed drama. A mime's physical representation of a particular attitude served as a snap shot of a larger narrative picture. From it, the audience could roughly deduce a character's status, where they have been and where they might want to go. "Attitude is the original method of the Mime and the essence of the Mime" (Lust 79). Decroux said, "I prefer the attitude to the gesture" (Decroux 123). Charles Chaplin concurred with this belief, stating, "in all comedy business, an attitude is most important" (Chaplin 150). In mime one is able to conceive of a movement as a succession of attitudes. Each attitude can be a stand alone expression but it is the succession of these attitudes, one after the other, that illuminates the specific narrative the mime is trying to get across. It's similar to how each frame of film can be a stand alone picture on its own, but when

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the frames are projected in succession they present a narrative to the audience. Movement in the actor's Mime is simply movement from one place to another (Bruford 12).

According to Decroux, man does not accept things existing together because he likes differences. A scientist admits that things exist together, but in the laboratory he separates them for experimental purposes. An artist, however, refuses even to admit this "togetherness." For Decroux, the law of art is not addition, but rather subtraction. "To add is to make a mess, to restore the original. What is rich in art? Not a mixture, but rather a purity, a single thing which penetrates deeply, a single thing that leads to all things Man governs" (Alberts 28). Therefore, a mime's gesture is an action that is in fact censored and elaborated by the intellect. It is a sharply defined image. The gesture is incisive and direct. Preceded by an opening sign, it ends in a punctuation pause, which prevents the gesture from melting in space as a dancer's gesture would do (Dorcy 34-35). Gestures for mimes conjure up absent forms whose actions it will either control or endure. The mime is called upon to find the tempo of the gesture as a function of the character to be portrayed. Dancers find the tempo of their gesture in the music (Decroux 9).

Decroux ultimately was challenging the spectators to move along a broad range, from the ideal or general to the concrete and specific. The dramatic conflict was to be created by the mime-actor, not provided by a story line. "The cultivated spectator had need of art, not of stories" (Zarrilli 12).

Étienne Decroux separates mime from the theatre saying, "It (mime) is able to become sufficient by itself. It is superior to theatre and equal to dance, from which it differs from the beginning, because mime must build from itself, whereas dance uses music… Mime is the essence of theatre, and theatre is a mishap of mime" (Nicoll 34).

Gaston Baty, who admired Decroux's work in mime, was upset with Decroux's attempt to isolate his art from theatre. He said Decroux was not amputating a limb by the separation, but that a limb in fact had amputated itself. Decroux replied that an art is rich in the same proportion that it is poor in means, and art is only complete if it is partial. A concept may owe its existence or meaning to a separate idea, but that doesn't stop the concept from being distinct from the original idea. Emotional states for example are dependent on outside stimuli. One is not simply angry or sad for no reason. They have to be motivated by some specific occurrence. My understanding of the concept of anger or sadness however, is not dependent on my knowledge of that specific occurrence that caused the emotion. They are separate concepts that have specific meaning and importance outside of the specific occurrence that may have elicited them. Corporeal mime, in similar fashion, may be related to theatre, but according to Decroux, because of its distinct performance style and capability of infinite expression, it is in fact a separate art form from theatre itself (Gelabert 67).

Decroux argues that those who define theatre as a synthesis of all the art do not understand the word "definition." Defining a man as a rational animal does not prevent him from being clothed, but defining a man as a dressed rational animal prevents him from ever taking a bath. In the Cartesian manner, Decroux is tearing down what existence is in order to break down what is theatre. Starting with the premise that "the theatre is the art of the actor," Decroux came up with this plan to rid the theatre of all unnecessary elements (Hartnoll 227).

1. For the duration of thirty years, all irrelevant arts would be banished. Substitute for the décor of the play the décor of the theatre, which will have for its sole purpose the throwing into sharp relief of all imaginable actions.

2. During the first ten years of this period, all elevation above the stage such as stools, stairs, terraces, balconies, etc., should be eliminated. The actor must suggest the idea that he is above and his partner below, although both are side by side.

3. During the first twenty years of this period, all vocal sounds should be eliminated. Then, admission of inarticulate cries for five years. Finally words admitted in the last five years of the thirty year period, but originating with the actor.

4. After these times of war—stabilization, the play will be composed in the following order:

   A. Setting down in writing the basic action forming the foundation of the work.

   B. The actor miming his action followed by accompaniment of inarticulate sounds, and then improvising his text.

   C. Introduction of literature in order to translate the improvised text into first quality language without, however, adding one word to it.

   D. The reappearance of some of the irrelevant arts, but practiced by the actors and when the actor is master of his house, he will consider employing dancers, singers and musicians for some indispensable and determined work (Decroux 42-43).

In 1962, over thirty years later, Decroux pondered this, his first writing on the theatre. He warns young people of the theatre not to take his formula too seriously, as all theatre should

be organic, but he does affirm the principles that "one must repeat the piece before writing it," and that "the theatre is the art of the actor" (Decroux 43).

With regards to mixing mime and speech, Decroux believes that you cannot follow long scenes of dialogue with lengthy scenes of mime. They appear bizarre and juxtaposed. One can however mix mime and words if one or both are poor. One element can thus emerge more vividly while the other recedes. But because playwrights are unaware of the possibilities of mime, no author will deliberately write words that are alternately weak and strong (Decroux 49-50).

If this refusal to write words alternately weak and strong is allowed to happen, the actor's contributions to the project become quite minuscule. The written word will take precedence and the actor's job becomes simply reciting the text clearly and precisely. Thus the performer, rather than driving the action of the play becomes a slave to the text. "The poet's lines follow one another inexorably, like the trucks of a goods train. The poor actor can't squeeze himself in between them. You understand, don't you, how in the end the slave revolts? The cry of the actor against literature is the cry of the native against imperialism" (Bentley 28).

Decroux was heavily influenced by Edward Gordon Craig's uber marionette concept, where the actor strives to attain the ideal state of a puppet on stage. According to Craig, the actor is insufficient because his acting is realistic and more verbal than visual. It is necessary for his acting style to become more visual than verbal. This image of a puppet inspired Decroux's mime to achieve his body's obedience through a corporeal technique. Decroux noted that Craig himself wrote at the bottom of a page in one of his books, "the author pronounces himself for dramatic mime" (Bentley 29). In order to achieve this "puppet like state" Decroux saw it

necessary to make an actor a "Robinson Crusoe"—alone without other elements on stage. To this end, students of Decroux, while in training, cover their faces with a mask, often a veil, to offer a neutral quality to their work on stage. In Decroux's opinion this allows for greater expressivity of the total body. Even when students did not wear masks, their faces remained impassive. This is because Decroux did not want performers relying on their facial gestures to convey emotion or meaning. For Decroux, performers too often use the face, arms and hands to illustrate a point rather than giving ideas full life and meaning with total body involvement. Through massive movements of his total body, the mime could achieve a grandiose expression free of the restrictions of "learned, restricted behavior" (Zarrilli 22). The performer in this state becomes more than an actor, for he is no longer illustrating ideas, but rather embodying them and giving them full life.

For Decroux, however, these "massive movements of the body" were never meant to be abstract in the conventional sense; movement for movement's sake. He describes his use of the abstract as the "flower of the concrete," where essence of the meaning was being abstracted out of concrete movement and themes the audience could relate to. While these movements may not always appear "realistic," they are able to express large ideas, and paint vivid landscapes in the audience's mind. Although his subject matter evokes the infinite and the universal in an imaginative manner, it depicts, by means of a precisely codified mime grammar, concrete themes. "Decroux believed that a truly expressive pose, a meaningful gesture, is an exterior manifestation of inner movement that, rather than depicting the particular, conveys the ideal and the universal in man. Conventionalized gestures and facial expressions are not able to convey the latter" (Lust 71).

21

In developing his technical training for mime, Decroux established a grammar of corporeal movement (Zarrilli 23). The spinal column and the respiratory system for Decroux became the subject of the corporeal sentence. Both these elements of the body grounded the performer in what movements were physically possible, just as a subject in a sentence helps a speaker from straying off on tangents. The verb was the mime's "trunk" or core of the body, where every movement, no matter how small or large originated. Finally the object of the sentence for Decroux was the performer's arms and legs which helped indicate an action. Corporeal mime requires a geometric analysis of all these sections of the body implemented by practicing isolations of the head, neck, chest, waist, pelvis, and legs. Only through the study of various muscle groups and the isolation and contracting of each of these muscles, could a performer hope to, in Decroux's opinion, achieve precision of movement (Lust 75).

Another artifice Decroux employed in his mime was a system of "geometric exactness" (Ibid 103). The Mime is limited to movement in three planes: the vertical, the horizontal and the diagonal. These order, in simple geometric designs, the movement of the Mime. As a consequence of this geometrical exactness, the Mime must combat the contagiousness of movement and isolate and move only that chosen part or parts of the body which he wishes to use, similar to training in Biomechanics. It is not enough to wish not to move other parts of the body, a conscious effort of the will not to move is necessary. "Immobility therefore becomes an art" (Decroux 103-105). The muscular basis of mime is abruptness and irregularity; it is the jerk and the plunge. The stopping of movement is mobile immobility, "like water pressure upon the dam, the flying in place of a fly stopped by a pane of glass" (Decroux 106).

Although a mime's movements are rooted in the real movements of a man, the mime can alter the rhythm and strength of the movement to imitate a machine to play "indifference, scorn, majesty, serene wisdom, justice… That is to say, all of which excludes the struggle of man against matter, or the problem of free will" (Decroux 106). Elements of the machine allow the mime a greater control and flexibility of the body to better express the thought. The mime becomes, therefore, the possessor of a body capable of following the commands of the spirit.

One of the cornerstones of Decroux's mime grammar, was the notion of contrepoids or counterbalance, which he saw as the key to creating illusion in mime. The classic examples of leaning against an imaginary table or pulling an imaginary rope are achieved through this idea of contrepoids in the body. "By means of the *raccourci* (abridgement in space and time) and counterbalance in the body, the mime, while remaining in place, suggested, for example, that he was climbing a mountain or swimming across an ocean. With their extensive knowledge of the muscular system corporeal mime performers can create tension against an opposing object that isn't really there. The attitude (pose) not only punctuated the movement, but also included the emotion of mental attitude accompanying that action" (Lust 73). Going back to biomechanics, contrepoids seem to follow Meyerhold's model of acting links, with this movement both including the realization and reaction beats. The counterbalance motion, leaning against an imaginary desk, would be the realization beat, and the response to said motion would be the reaction.

ÜBER-MARIONETTE

"May we not look forward with hope to that day which shall bring back to us once more the figure, or symbolic creature, made also by the cunning of the artist, so that we can gain once more the 'noble artificiality' which the old writer speaks of? Then shall we no longer be under the cruel influence of the emotional confessions of weakness which are nightly witnessed by the people and which in their turn create in the beholders the very weaknesses which are exhibited. To that end we must study to remake these images no longer content with a puppet, we must create an Über-marionette" (Lyons 258).

In his 1908 essay "The Actor and the Über-marionette," Edward Gordon Craig expanded on the thoughts of Maeterlinck and several other theatre practitioners in developing a new kind of actor. This actor would be based on the form and grace of models and statues. The vehicle for true dramatic expression, he believed, would have to be one more consistent and reliable than a traditional performer. Craig saw large puppets, Über-marionettes, as the ideal actor for his theatre of the future. His interest in puppets is fascinating, given that Craig detested puppet theatre of his time. "The marionette appears to me to be the last echo of some noble and beautiful art, of a past civilization. But as with all art, which has passed into flat or vulgar hands, the puppet has become a reproach. All puppets are now but low comedians. They imitate the comedians of the larger and fuller blooded stage. They enter only to fall on their back. They drink only to reel, and make love only to raise a laugh. They have forgotten the counsel of their mother the Sphinx" (Craig, Puppets 27).   Craig wished to restore the marionette to its original glory and usher in a new era of creative expression.

Craig's thoughts concerning performance are based upon the belief that the objective of the theatre is neither intellectual nor emotional but rather the "evocation of aesthetic pleasure derived from the presence of true imaginative beauty" (Lyons 257). Symbolism forms the basis for all Craig's aesthetic theories. The design of the sets and the costumes, as well as an actor's movements and posture, are key to conveying the meaning of the play. Craig felt strongly that performers of his day didn't "create" but rather imitated. The audience can interpret an actor's imitation in a number of different ways, resulting in a poor representation of the writer's original thoughts. For Craig, the actor, in his current state, was simply too unpredictable and threatened the unity of the production. Unity or a single vision was absolutely vital to the success of a production. Therefore Craig felt that all elements of the production should be the product of the mind of the single artistic director. To this end Craig insisted that the theatre develop a new language of movement, "a new form of acting, consisting for the main part of symbolical gesture" (Lyons 260).

Craig saw Western theatre's psychological (inside out) approach to actor training as contrary to his symbolic concept of the performer. An actor's role in a play is to communicate a specific meaning, vital to the understanding of the play as a whole. If a performer lets emotional instinct guide him, an inconsistent, chaotic performance can be the result. The character's meaning could change drastically depending on what night you viewed the performance. It was Craig's belief that the outward appearance and the movements of an actor were what informed both an audience's understanding, as well as an actor's concept, of a character. Thus, just as Meyerhold and Descroux believed, he too believed that actors should take an outside in approach to performance training.

Understanding how the body moved and how these movements/gestures informed

meaning were key to the success of a production. Craig's theories on actor training were also

rooted in his fascination of Oriental performance, particularly No drama. Because Oriental

drama conventions have existed for many centuries, an actor would have a hard time

reinterpreting the play through her performance. The re-imagining of a character would simply

be seen as wrong by everyone involved (Lee 490).   As the supreme example of the disciplined

actor, the No performer is completely subjected by his form. Craig's fascination with No drama

largely stemmed from his observance of the Japanese actor, Olojiro Kawakami. ". . . It does not

matter that you do not understand the language of these artists. . . . In seeing his very powerful

and always beautiful gestures. . . , I understood the Japanese . . . and came to a fuller

understanding of something else; that is to say, the aims of Mr. Gordon Craig to subordinate

word to gesture in dramatic art" (Lyons 266). Craig never wished to force the Eastern form of

performance on his culture. He simply hoped that, using them as an example, a durable form

could be developed for the Western actor.

Craig felt strongly that it was the stage-director's aesthetic interpretation of movement,

color, and rhythm that ultimately produced the art of the theatre. It was vital that the director

have complete control over all these elements, otherwise chaos, not art, would be the result.

Clearly an actor's physical body and voice are important elements of that medium, but not

necessarily elements that a director can always control. Poor training or a poor attitude by the

performer can be disastrous to the director's original vision. "For his thoughts (beautiful as they

may chance to be) may not match the spirit of the pattern which has been so carefully prepared

by the director (Craig, Art 3). Thus an actor must be well trained, and capable of fully and

consistently performing the actions in the play. They must also be intelligent enough to understand that the director's vision, not a performer's personal interpretation of the character, is the most vital element when constructing a play. "... the ideal actor will be the man who possesses both a rich nature and a powerful brain. . ... It will contain everything. . . . The perfect actor would be he whose brain could conceive and could show us the perfect symbols of all which his nature contains" (Craig, Art 6).

   ". . . The actor as he is today must ultimately disappear and be merged in something else if works of art are to be seen in our kingdom of the Theatre" (Craig, Art 9). Art, in Craig's opinion depends on perfect movement and ever since man's fall from grace it has been difficult to achieve perfection in his movments. ". . . we have to ban-ish from our mind all thought of the use of a human form as the instrument which we are to use to translate what we call movement" (Craig, Puppets 30). Craig believes we can't use the human body as our basis for "perfect movement," because it is itself at the core flawed. We must find some other form to emulate. (Lyons 261- 262)

   Contrary to what his writings would have you believe, Craig never wished for puppets to replace actors altogether.   Nor did he think that all actors were completely incompetent. In fact Craig held many performers of the time in high esteem, particularly Eleonora Duse. Some scholars have taken this to mean that Craig simply meant the Über-marionette as a metaphor. Perhaps the concept of the "super puppet" was merely a model for the actors to emulate, and persuade against destructive egotistical behavior. Some of Craig's writings support these claims, particularly his papers written after 1924. However, examining Craig's career and writings clearly reveals that he always intended a practical application of his "super puppet." In June of

1905, Craig was immersed in the planning phase for a production that proposed mixing the Über-marionette with other performers. Several of his writings from this time gave specific details on the construction and employment of these puppets in his productions. "The Über-marionette will average in height from 4 and a half to 5 feet. The Heroes and other distinguished characters will measure from 5 to 5 and a half feet - or even 6 feet. The Gods 6 and a half feet, or more if necessary for athletes and dancers, gymnasts and models" (Lyons 263). Numerous productions, including Macbeth, Faust and dramas by Maeterlinck were planned for a new theatre in Dresden. All productions were to employ this mix of puppets and performers, but due to financial support from Count Harry Kessler falling through, the project never materialized (Craig, Story 18).

In 1908 Craig turned his attention to writing and carried his super puppet theories even further, tearing down the traditional form of acting. He took his cue from Eleonora Duse's famous claim, "To save the Theatre, the Theatre must be destroyed, the actors and actresses must all die of the plague . . . They make art impossible" (Kirby 18). Craig revisits his concept of actors lacking the proper training to fully and consistently perform actions of the play, and describes performers as often times being at the mercy of their emotions. "The actions of the actor's body, the expression of his face, the sounds of his voice, all are at the mercy of the winds of his emotions: . . . emotion possesses him…" (Craig Puppets 30). The necessary action in art is symbolic movement, not the gesture which attempts to reproduce nature (Lyons 262). Unpredictable emotions often lead to imitation rather than the true realization of the character. Puppets themselves are clearly not subject to emotions and therefore serve as good role models for the actors.

Around the same time, ironically, Craig opened a school for actors at the Arena Goldoni in Florence, Italy. As mentioned before, Craig never wished to do away with actors altogether. While classes were offered, the school served primarily as a center to test out Craig's theories on puppets. Craig at one time commissioned students to manufacture an extremely large puppet for him. As Craig's son, Edward, described it: "An experimental marionette, eight feet high, was made by the carvers, and attempts were made to manipulate it. Typically for Italian craftsmen, on the day it was finished they hurriedly rigged it, suspending it from a platform twenty feet up and, as Craig arrived, the giant figure bowed, and with slow gestures, addressed him in Italian, wishing him good luck in all his enterprises" (Olf 6).

Craig's fascination with puppets at this time reached a global scale, as he began an intense study of puppets from all over the world. He became fascinated with how different cultures constructed puppets and how capable of expression they appeared. Collections of puppets were purchased from Java and Burma. The English puppeteer, Stanley Wilkinson, frequented the school to give his insight and Craig would constantly attend the productions of famous Italian puppeteers, such as the Colla and Lupi families, as well as Vittorio Podrecca's company. The goal was to find common ground among puppets of all cultures and break down the art form to its essence (Lee 492).

Unfortunately for Craig, The Arena Goldoni School closed in 1914, when the space was needed for wartime use. This setback however did not stop Craig's musings on puppetry, particularly on how expressive the lifeless forms could be. "I have a Puppet which (if I only knew how to let him move) does really move as to cause delight. I had him with me in Roma,

and some of my friends who came to see me will forget me but I am sure they will never forget him" (Craig, Story 7).

Later that year, after becoming dissatisfied with academic essays on the matter, Craig began writing plays specifically designed for puppets. These plays, written under the pseudonym, Tom Fool, came to be collectively known as *Dramas for Fools*. In calling them Dramas for Fools, he was referring to the tradition of the Fool, from which puppet theatre derived much of its inspiration. The concept included 365 plays (one performed each day of the year) that would present the history of humanity in miniature drama. Craig used the Medieval Cycles of Mystery plays as his model when constructing this opus. With these plays he wasn't just reshaping our own interpretation of history, but also the interpretation of puppets through time. The productions would allow his controversial puppet theories to speak for themselves. "Future - Today - these words defining time are clumsy and do not fulfill their task. Because you could judge that, speaking of the Future, I think of five or ten years... while all the time I mean what will come after the victory of the puppets. You may consider, that when I say Today I am thinking - this year, but this is not true. I mean the time of the victory of the puppets. The Über-marionette comes later" (Craig, Puppets 8).

These plays were also intended to inspire actors to perfect their craft. Craig considered the marionette as a real model for actors to emulate, while at same time not merely functioning as a metaphor but rather as a seasoned co-performer. Only the puppet, according to Craig, could demonstrate the ideal of human movement as well as the proper discipline with which to approach the craft of acting. Craig detested the lack of discipline, which he felt characterized

current performers of the theatre. An actor's poor work ethic and irrational emotions would often take control of the production, guiding its direction and artistic design. He saw the marionette as a way to escape all of this. The puppet was the embodiment of a perfectly disciplined actor. "The marionette, as a figure, which holds neither animation nor personality apart from that given to him by the stage-director, would provide a flexible and calculable material for the design without obtruding upon it… There is only one actor… nay one man . . . who has the soul of the Dramatic poet and who has ever served as true and loyal interpreter of the Poet. This is the 'marionette.' As an inanimate object, subject only to the will of the manipulator, the discipline of the puppet would be the ideal: the silent and obedient actor" (Lyons 263). For the sake of the future of the theatre, Craig felt it was vital that performers take their cues off their silent marionette partners. "They [the actors] must create for them-selves a new form of acting, consisting for the main part of symbolic gesture as seen in a marionette" (Lyons 265). Craig requests the actor to release himself from that limitation which is imposed upon him by emotional acting. He demands that suggestion by symbol (movements of the marionette) replace impersonation.

To this end, Craig advised all actors to never travel without a marionette and always make sure that this puppet is of the utmost quality and well maintained. "Have one made, let it be three feet high. See that it's well balanced and carved by some really good wood-carver; have it carefully strung and put on a cunning stick. For the stick is the soul of the Puppet. Then practice with this in front of a glass. Hold it easily, letting the feet just touch the carpet. Do this a dozen times every morning and every afternoon before your other exercises" (Craig, Puppets 10). Craig literally saw the puppet as a master of theatrical expression, possessing almost a god like

quality over the art form. Nothing would ever replace it. Therefore it would always have a place on the stage. As puppets always have been and always will be a fixture of the theatre, Craig urged performers to learn from the marionettes' example. Let them function as an acting partner that offers an idea of "man in motion." "The puppet," he claimed, "is the ABC of the actor. The Puppet is the Actor's Primer. Architects have Vitruvius, Palladio and a dozen others: musicians have Rameau and a dozen others: painters have Leonardo, Cennini and dozen others: writers have the Dictionary and actors have the Puppet" (Craig, Puppets 9). Does this mean that Craig intended for performers to emulate the stylized gestures of a puppet? Not exactly, because Craig felt most manipulators of puppets had no idea what they were doing. The aim was not to copy hectic motions of a bouncing marionette but rather to emulate the stoic nature of the puppet itself. Find strength in the stillness. Find the power of a neutral expression or neutral position of the body. See how the slightest turn of the head or gesture of the hand changes the intent. "Once you have made a Puppet and taught yourself to allow it to move (and it's that and nothing else; I mean you don't move it; you let it move itself; that is the art.)... once you have done these two things I promise you, if you are a born artist, the world is in for a very great treat. The Idea of man in motion, in perfect motion, will be seen for the first time in a generation" (Craig, Puppets 11).

Craig's dream of 365 puppet plays was never fully realized. Only 116 productions were written and of those only six were published (*The End of Mr. Fish and Mrs. Bone*, *The Tune the Old Cow died of*, *The Gordian Knot*, *School and Blue Sky*, *Romeo and Juliet* and *The Three Men of Gotham*). Craig provided a preface to these plays in a 1918 publication of *The Marionette* entitled "The Marionnette Drama: Some Notes for an Introduction to 'The Drama for Fools' by

Tom Fool." This introduction shows the supposed shortcomings of Proper Drama (plays performed by human actors) and Drama for Marionettes. It is the inability to be exact that cripples a human performer, and precisely what makes a marionette so fascinating to watch. "…a Proper Drama has to be vague and roundabout in its movements, a Marionnette Drama had always better be direct and rapid and even obvious. With the Proper Drama so much can be helped along by the actor; for example, if its author wishes to draw a subtle character like Iago he can do so, making him seem to be quite a pleasant personage; for the actor who completes the work will explain, by additional exercise of subtlety, that he is not as pleasant a personage as the audience might suppose… a Marionnette cannot do that. A Marionnette is not at all clever, not subtle. He must fit the character like a hand fits a glove, or all is undone. Therefore, when we make a character in one of our Dramas we make the Marionette to fit it. And so it comes about that a Marionette does not play a number of parts, he plays only one... that is himself. This is different from the actor who plays many parts and must therefore pretend. The Marionette never pretends... therefore the Marionette can save the Theatre. Neither in character nor in appearance must the Marionette be 'subtle'. There must be no shilly-shallying about either his looks or his actions. He is or he is not 'Hamlet'... whereas in the Proper Drama, 'Hamlet' is sometimes one thing, sometimes another, and seldom is he 'Hamlet'. Thus the cunning of the playwright, of the actor and of the audience is properly exercised, while this directness of the Marionette Theatre curbs our fancy; and though, when writing, we must deny ourselves very many excursions, still, we may range pretty freely so long as we keep on the high road (Olf 16).

Even to this day critics argue over Craig's ultimate viewpoint on traditional performance, and whether this opinion changed over time. Some of his earlier essays seem to be more

accepting of acting in the traditional sense whereas later works seem scathing. His 1918 preface "The Marionette Drama: Some Notes for an Introduction to 'The Drama for Fools' by Tom Fool," for example seems adamantly against traditional performers, which of course is contrary to his earlier writings. "What are marionettes? Men without egoism. What are men? - Egoists. They walk, sleep, read, play, visit, eat and drink and work as egoists. And more - they think, feel through egoism, see through it, hear through it. They soak it up like sponges. Once well filled in every pore, and we have what we call a man… A marionette… seems to do all these things exactly as men do, and what makes him so fresh, so free from something detestable, something which haunts us when we see real men, is that this awful thing Egoism is not with him. He seems to think and feel, to see and to hear without egoism... and without that pose of altruism... egoism's top-notch. All this makes the marionettes so refreshing, and gives us a sense of surprise and gaiety when they appear. Who could quarrel with one of them? Why, they are even unaware that we see them" (Olf 15).

In 1924 Craig introduced a new preface to the fourth edition of *On the Art of Theatre*, where he attempted to clear up confusion concerning his frustration with the art of acting. Craig from the beginning never wished for the puppet to completely replace actors on stage. He felt performers had much to learn from puppets and wished for marionettes to be studied by actors when preparing for roles. He also wished to restore the puppet's rightful place in theatre as a co-performer with traditional actors. It's easy to understand why many scholars are confused as to Craig's ultimate viewpoint on the matter. With this new preface Craig tried to clarify matters and silence his critics. "Is it not true," he wrote, "that when we cry 'Oh, go to the Devil!' we never really want that to happen? What we mean is, 'get a little of his fire and come back cured"

(Olf 12). He didn't wish to do away with the art of acting but rather reform it. In this same preface Craig tried to further define his concept of the Über-marionette, which had also caused some confusion for critics. "The Über-marionette is the actor plus fire minus egoism; the fire of the gods and demons without the smoke and steam of mortality. The literal ones took me to mean pieces of wood one foot in height; that infuriated them; they talked of it for ten years as a mad, a wrong, an insulting idea. They got the point, and I think I owe them a word of thanks" (Lyons 268).

For Craig, the ideal performer functions primarily as a visual symbol, serving the visual art of theatre as a whole. The actor, like all the visual elements, is ultimately another component of the director's vision of the play. It is important that all elements are part of the director's unified design, otherwise chaos, and ultimate confusion by the audience could be the result. Individual contributions from the actor are fine, as long as these suggestions fit into the director's preconceived model of the play. This design trumps everything. Actors with ego problems, or who fail to see theatre as a director's medium, threaten the symbolic design of the production.

In addition to attitude adjustments, training is vital for a performer, specifically classes focused on mastery of physical movement. The puppet is ultimately the best role model for a performer, and the perfect acting partner. (Lyons 269) The Uber-marionette concept, a puppet that would ultimately blur the lines between human performers and marionettes, was never fully realized in Craig's lifetime. It is my belief however, that with the help of modern technology Craig's vision has come to fruition. Motion capture performance, digital puppetry, used extensively in the film business, is the truly embodiment of Craig's dream.

MOTION CAPTURE PERFORMANCE

Advancements in film technology, and more specifically in the field of compositing (the combining of visual elements from separate sources into single images), have allowed directors a great deal of flexibility in terms of how a movie is shot. Often a single shot will be made up of several different elements or performances captured at various times. Editors during the postproduction process will combine these elements so that they appear to blend seamlessly into a single shot. Sometimes a director will wish a particular actor to perform a role that he/she is not physically suited for. Director Peter Jackson cast Andy Serkis to play a forty-foot ape in the 2005 remake of *King Kong*. Obviously Serkis does not match the role physically, but through the motion capture process, any role is up for grabs. "Motion capture or "mo-cap" is the recording of human body movement (or other movement) for immediate or delayed analysis and playback" (Sturman 1). Technology used for this process was originally designed for the military in the mid 1970's but has since exploded onto the entertainment scene in a number of ways. The process, roughly speaking, converts physical movements of an individual into computer data. Typically this information can then be applied to a computer-generated model, allowing a live performer to manipulate it much like a puppeteer moves a puppet. The character *Gollum* from the Peter Jackson's *The Lord of the Rings*, is visually nothing more than a series of pixels on the screen. However, thanks to the motion capture process, actor Andy Serkis can infuse that CG model with a truly moving performance, creating one of the most memorable characters in cinema history.

The technology allowed Robert Zemeckis to have Tom Hanks perform multiple characters that appear on screen at the same time in *The Polar Express*. In my own personal

acting experience on the feature film *Flashback*, I provided the movements for a computer generated dinosaur using a process very similar to motion capture. Though my hands on experience with the technology is limited I strongly agree with James Cameron that "mo-cap is the future of film," and that it is more than necessary for performers to have knowledge of this medium. From dance and music, to video games and creature animation, motion capture's versatility seems endless. As far as computer animation is concerned, the motion capture process is still a relatively new field, but it builds on a legacy that has been around since the early days of cinema. To better understand the motion capture process of today (specifically optical motion tracking systems used in the film industry) I believe it is important to explore the history of the medium's development.

The evolution of the field can be traced back to Eadweard Muybridge in 1872. Muybridge was intensely fascinated by how human and animal bodies operated in motion. By shooting multiple photographs of a moving subject over a short period, he was able to essentially track a body's motion a fraction of a second at a time. One of his most famous experiments began in 1878 when Leland Stanford, the former Governor of California asked Muybridge to photograph his horse Occident. Leland and several friends were curious as to whether a horse ever had all four feet off the ground when galloping at full speed. The legs moved so fast that it was hard to determine this fact with the naked eye. Muybridge arranged a series of cameras perfectly parallel to the horse's running track. These cameras were equipped with a special shutter that was electro- magnetically triggered to go when the horse ran by it. From this experiment Muybridge's was able to prove that part of the horse's running cycle included having all four feet off the ground at once. Muybridge later took these images and arranged them in a

pin wheel to create the first zoopraxiscope. When the pin wheel was spun and the viewer peered

through a special eye hole, the still images were displayed in such rapid succession that they

appeared to be moving. This became the basis of modern animation. (Varadarjan 2).

In 1915 Max Fleischer (cartoonist responsible for *Betty Boop*, *Popeye*, and *Superman* to

name a few) built upon Muybridge's concept with the invention of the rotoscope. The rotoscope

utilized a projector, which created frame-by-frame alignment between live action footage and

animation cells. "The machine projected filmed images down through the actual lens of the

animation camera and onto the page where animators draw and compose images" (Hooks 21).

Essentially, animators now could trace the live action movements of actors frame by frame and

apply them to their cartoon characters.   This technique allowed their animated characters to

move more realistically. It also served simply as a good reference point, since animators now

were able to study human movements 1 frame ($1/24^{th}$ of a second) at a time. Fleischer told the

New York Times in a 1920 article that "an artist, for example, will simply sit down and, with a

certain character in mind, draw the figures that they are to make animated. If he wants an arm to

move, he will draw the figure several times with the arm in the positions necessary to give it

motion on the screen. The probability is that the resulting movement will be mechanical,

unnatural, because the whole position of his figure's body would not correspond to that which a

human body would take in the same motion. With only the aid of his imagination, an artist

cannot, as a rule, get the perspective and related motions of reality… rotoscope, allowed

animators to work from a filmed image, which gave them the guidance they needed to create

more graceful and realistic movement on screen… It was beautiful to watch, rather than very

annoying to watch," (Hooks 27). This basic principle, of applying human motion to animated

characters is precisely the same concept that motion capture adheres to. Many film experts see motion capture as a natural extension of the rotoscope process.

Motion capture technology found its way into military use during the late 1970's. On of the first documented cases to use the technology however was Tom Clavert in 1982. Clavert, a professor of kinesiology and computer science at Simon Fraser University, attached potentiometers (electronic switches) to volunteer's joints and tracked position changes electronically. "To track knee flexion, for instance, they strapped a sort of exoskeleton to each leg, positioning a potentiometer alongside each knee so as to bend in concert with the knee. The analog output was then converted to a digital form and fed to the computer animation system" (Calvert 48-50). The potentiometers served as reference points when deciphering the movement of the subject. This movement data was then applied to a computer animated figure. Thus the animated figure was performing the exact same movements as the medical volunteer. Like rotoscope, the movements of a performer provided the basis of an animated character's performance. Unlike rotoscope, however, the movement wasn't simply a visual reference but was in fact being applied directly onto the model. Though this study was only intended as a clinical assessment of movement abnormalities, it was in fact the first example of digital puppetry, or motion capture (Varadarajan 7).

Later that same year, commercial optical tracking systems began to find their way into computer graphic companies. Optical motion-trackers, like *Op Eye* and *SelSpot*, typically use multiple two-dimensional imaging sensors (cameras) to detect "active" infrared-emitting markers affixed to a performer. These reference markers, typically flashing LEDs or small reflecting dots,

provide position information to the multiple cameras in the performance space. Based on this information *iotracker software* runs advanced image processing algorithms to calculate the projected centers of every marker in every camera image. By having multiple cameras and multiple markers in the performance space the 3D location of every marker can be determined via geometric triangulation. Thus precise data on the location of a performer throughout the entirety of his/her performance can be obtained. One of the many perks of optical motion tracking is that the cameras only record the reference points on the performer, and nothing else in the performance space. Thus the space a performer works in can literally be anywhere, as long as its big enough to move around in. LEDs are also much less cumbersome than potentiometers, thus a performer has a freer range of motion, allowing for a more natural performance (Jonker 330-331).

It's important to point out that Optical motion tracking systems are not the only form of motion capture available today. Systems similar to Clavert's original design are still being used, as well as numerous other variations on the model. A client's particular need will dictate which system is best for him/her (Ginsber 174-176). For the purposes of this paper, I will now focus specifically on optical motion tracking systems as they are the most widely used for the film/video game performance purposes.

Ever since the development of optical motion tracking systems, motion capture has really left its mark on the film and television industry. One of the first motion capture characters was Waldo C. Graphic, developed by the *Jim Henson Company* in 1988. This also marked the first time that a digital puppet was controlled in real time. Meaning the computer image was mixed

with the video feed of the camera focused on the performer so that everyone could perform

together.   The performer could see how the digital puppet was being manipulated at the same

time as they performed the movements (Walters 69-72). This same real time technology found

its way into James Cameron's 1997 blockbuster *Titanic*, where it was used to help simulate the

movements of hundreds of sinking passengers. A group of ten actors were all that were

necessary to provide the movements of the ill fated passengers aboard the ship. In 1999 Jar Jar

Binks from *Star Wars Episode 1: The Phantom Menace* became the first principle character in a

feature film to be fully realized through the motion capture process. Real time play back was

what allowed Director George Lucas the ability to give actor Ahmed Best precise direction when

going over shots in the motion capture stage. Both Best and Lucas could see collectively what

the end result would be on the CG model, and adjust motivations or blocking accordingly.

According to Lucas, this feature of real time play back is what makes the technology accessible

to performers and directors.

Typical motion capture productions can be broken down into five stages: planning,

shooting, data processing, skeleton creation and mapping to characters. The planning stage

involves understanding the objectives of the shoot and how the motion data is to be used.

Storyboards (comic book-like depiction of all action in the sequence) are usually employed not

only to map out the blocking of the character but also to give technicians an idea of where to

place the sensors on an actor. If the sequence only requires the movement of an actor's arm, it

would be silly to place sensors all over a performer's face, for example. Storyboards also

explain the number of characters involved in the final shot, and how these characters interact

with each other. Since motion data captured on the mocap stage can be applied to CG models at

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any time, it is not necessary for every performer who appears in the shot to be present at the same time. In fact, budget constraints concerning the number of sensors/cameras used and size limitations of the motion capture stage usually prohibit large numbers of actors working at once. As a result a single shot can be composed of multiple performances shot at various times. Storyboards also display what kind of props characters may come into contact with during the scene. Depending on the shot, props may or may not be used during a motion capture session. If they are (which is rarely the case) the props usually will be equipped with sensors so the cameras can track the position of those objects as well. Budget reasons typically prohibit use of props (added cost of extra sensors), so actors are required to mime most interactions with props. Clearly this could all be a nightmare if it is not all properly planned out ahead of time (Varadarajan 21).

"There is no improv class you could take that would compare to a regular day on a mo-cap set. It's all about imagination, commitment, adaptability, body language and control. What I love most about this work is the ability to be anyone or anything. Like any acting, you've gotta sell it… In my experience so far, I have played hundreds of different characters. Men, women, children, aliens, rock stars, cops, gangsters, fisherman, old homeless guys, foreigners… Motion capture has provided me with so many opportunities to play and explore and grow, which are really the main reasons I love to perform" (Actors Blog). Actor Jason Palmer, who provides most of the mo-cap for the *Guitar Hero* video game franchise, compares the shooting phase of the motion capture process to the imaginary play of kids. Like kids playing in their backyard, the use of your imagination is vital. Because most of the tools that come to the aide of performers are not there on the motion capture stage (costume, props, set) it's up to the actor to

often find their own motivation and ultimately make the performance accessible for an audience. "If the director tells you the big, scary monster is in that corner over there, and there isn't really a monster, our job as actors is to make the audience believe" (Actors Blog). This of course is no easy matter.

A motion capturer performer's wardrobe typically consists of a tight-fitting spandex suit. This will not only allow an actor a free range of movement, but also expose key joints (knees, elbows, hips, etc.) in the body to the surrounding cameras. It is important that these joints (which are marked with sensors) are in constant view of the cameras; otherwise the movement will not be properly recorded. The placement of sensors is analogous to the makeup process for a mo cap performer. Sensors must be placed in precise areas of the body depending on the needs of the shoot. If facial motion capture is required it can take well over 40 minutes to apply all the sensors. Once the actor is in wardrobe and equipped with the sensors they make their way to the mo-cap stage, or the "volume" as it is typically referred to. The performance space will be marked off by a series of cameras, which surround the performer. In addition to the cameras, there typically will be a couple of monitors that display the real time play back of the animated character doing the movements of the actor. Much like a actor strives to develop a dual consciousness that is at the same time totally in the moment within the performance yet includes awareness of the audience that is sharing that moment, a mo-cap performer must be aware of the playback monitor but not let it distract from his/her performance.

A motion capture shooting session typically runs 8 hours. Unlike traditional film shoots, which require sets and cameras to be rearranged for every shot, motion capture can jump from

one scene to the next in a matter of seconds. This means there is very little down time for a

performer (Dyer). It's no wonder why director James Cameron compares the process to the

running of a marathon.

Once the actor's movements have been recorded, computer animators then look over the

data. Sometimes this information needs to be adjusted to fit the anatomy of the CG creature.

This is especially true when actors are portraying non-human characters. My skeletal structure

does not fit that of a dinosaur so the movements I performed for the Velociraptor in the movie

Flashback had to be adjusted considerably to fit the character. The essence of the performance

remains, but slight alterations may be made to better accommodate the creature's skeletal

structure. Sometimes a performance will require alterations made to the computer model itself.

James Cameron loved the Sam Worthington's motion capture performance in *Avatar* so much

that he adjusted the design of his Navii aliens to better suit it. I find it fascinating how there can

be that give and take to the art form. The design inspires the performance of the actor, which in

turn helps reinvent the design. Once the data has been analyzed and any necessary adjustments

have been made to the CG model, the movement is then applied or mapped onto the CG creature.

Thus you have an animated creature with the essence and performance of a live actor (deGraf

11).

The thing I like most about this medium is that physical types (parts we are best suited

for physically) are no longer an issue. You can play outside your type or outside your own

species for that matter. For me personally it removes a sense of vanity that has dominated

Hollywood-casting choices for far too long. The performance is all that matters. As a result I

think proper acting training is more vital now than it ever has been before. "Anyone can be a motion capture actor. We are all snowflakes, different shapes and sizes, but in the computer our dimensions can be manipulated and moved around… you are limited only by your imagination (Actors Blog).

MOTION CAPTURE AS IT APPLIES TO BIOMECHANICS

Meyerhold called his theory biomechanics due to its connection with the "technology of the body." Bodies are constantly compared to finely tuned machines in his writings, and the overall emphasis of his theory seems to be that mechanical precision leads to complete control of your acting instrument (Braun 167). In similar fashion motion capture performance is also interested in the "technology of the body." In fact the fusing of technology and physical motion is even more apparent in this medium. The technology used in mo-cap is useless without the performer, and actors are helpless without the technology. In a sense a performer must become a part of the machine, and work along side it. There must be a seamless blend between the two, otherwise the virtual character cannot be fully realized. If a performer wishes to have a seamless transition with the technology, I believe it would behoove them to study aspects of Meyerhold's biomechanics.

When venturing down the aisle of a video game store one will usually see many games that feature the military, martial artists, and athletes. There is a big market for these games, and as a result a major opportunity for mo-cap performers to play these kinds of physical roles. However, game developers have found that typical acting training does not cover physical movement found in these fields. Thus the mo-cap jobs will not go to actors, but rather people who have been employed in these lines of work. "Most of the regularly-employed motion capture actors are stunt people, ex-military, or martial artists simply because of the amount of specialized movement they're asked to do" (Actors Blog) Unlike many of his contemporaries, Meyerhold embraced more physical forms of performance like circus arts, acrobatics and

pantomime. His goal was to develop an acting style that could prepare a performer for any role

he/she might come into contact with. Knowledge of these elaborate movements and being able

to perform them with mechanical like precision would be invaluable to a motion capture

performer. This wealth of movement knowledge, which the mo-cap performer would be able to

draw upon, would prepare this actor for nearly any role. (Hodge 39).

On the set of *Flashback* I witnessed first hand just how physically demanding mo-cap

roles can be. Providing the movements for a computer generated Velociraptor dinosaur is quite

possibly one of most tiring acting assignments I've ever had. *Flashback* features several fight

sequences between live performers and the computer generated dinosaur. Because the

dinosaur's movements were recorded separately from the rest of the cast, it was my job to

convey both sides of a fight through my own body movements. Slashing and biting a victim

proved to be much easier than taking a hit or being knocked down. If the dinosaur was being hit,

my movements had to occur at precisely the same time as the previously recorded footage of the

live actor throwing the punch. Meyerhold's concept of mechanical precision and muscle

memory was absolutely vital in this case. I had to perform the given reaction at precisely the

right time, otherwise the two separate perfomances (my movements and the previously recorded

actors' movements) wouldn't blend seamlessly into the same shot. To achieve the right timing, I

would study the playback of the other actor's movements, paying close attention to the timing of

the hit and the angle at which the punch was thrown. I found it extremely helpful to break down

the movement that needed to be performed into smaller parts, and, when rehearsing, over-

exaggerate the movements involved in these smaller parts. This is exactly how my grad class

learned how to perform front flips in movement class. We weren't simply shown a front flip and

then asked to perform it. Rather, elements of the flip were broken down and we would spend several classes getting our bodies familiar with these elements. Meyerhold was a firm believer in breaking down movements when developing muscle memory. "When an exercise is broken up into small elements it must be done staccato; the legato will appear when the exercise is executed as an unbroken flowing whole" (Potter 6). Basically, you have to develop muscle of the smaller elements before reassembling the parts into one unbroken natural movement. After multiple rehearsals with exaggerated elements of the movement that needed to be performed, I would begin running the movement at normal speed. The crew would have a tape of the other actor's movements playing as I performed my movements to make sure the performances were synching up. It's not hard to imagine that after several takes of falling to the floor, you could easily injure yourself if you're not properly trained. Honestly, due to the nature of motion capture and the number of times you must perform the same action, it's easy for even a trained professional to get hurt. Knowledge of circus arts, specifically tumbling, is absolutely crucial to simply survive a shoot. One shot called for me to get hit in the face and fly violently backwards crashing to the floor. Due to the intricate timing involved, I ended up performing this movement 48 times. My grad school experience with the techniques Jacques Lecoq (who shares many similarities to both Meyerhold and Decroux), became a real life saver through the Raptor shoots.

As previously mentioned students of biomechanics are regularly encouraged to observe movement in the field (out in the world) and draw upon what they observe to fuel future characters. The specificity involved with this observation is key for a motion capture performer. Going back to the video game example, if a motion capture performer has to perform like a pro-athlete it would be wise to observe an athlete and take note as to how they move. The student of

biomechanics would break down the athlete's movements in the same way they broke down the

animal's movements. Just like a machine, each specific action must be performed at exactly the

right time otherwise a specific movement will not be achieved. The swinging of a baseball bat

for example involves numerous physical actions (pivoting of back foot, distribution of weight

from back to front, the twisting of the upper body from the hips, etc.) Nowhere is Meyerhold's

"Principle of Totality," the observance that the slightest gesture affects the entire body, better

demonstrated than in the movement of athletes. A biomechanics performer, well versed in

Meyerhold's acting technique would take note of all of this and be able to apply it to their

movements when a given motion capture scene calls for it (Braun 73).

In order to provide the movements for a dinosaur I clearly had to make a great departure

from my own way of moving. Though a Raptor and a human are both bipedal animals the

skeletal structures are radically different. According to renowned paleontologist Jack Horner,

dinosaur's closest living relatives are not reptiles but in fact birds. During my two years of

classes on the UCF campuses I frequently came across a family of sand hill cranes, who liked to

hang around the theatre offices. Sand hill cranes can grow up to five feet tall, so these birds are

quite impressive in size. Many times during lunch or after class I would sit quietly and observe

their movements. The female bird proved to be an extremely helpful reference for a vicious

dinosaur as she would snap or attack anything that came near its new born baby. I observed a

certain gracefulness in their walk and a real economy of movement. Sand hill cranes, like most

birds, have eyes on the side of their head instead of in front as humans do. Thus anytime a noise

was heard, they would turn their heads quite dramatically to get a close look. If something was

approaching, their head movements from side to side would occur fairly rapidly to gain a sense

of distance between them and the potential threat. When the cranes were simply walking at a more casual pace, it seemed each step had a very delicate touch to it—almost like someone testing the ice to make sure it was solid enough to stand on. There were times when they would place a foot out, touch something that wasn't appealing to them and then retract it back. One defining characteristic I observed was how straight up and down their neck is, regardless of the position of the body. It will certainly bend down occasionally to pick something up off the ground, but for the most part the bird's neck and head were always upright, as if standing at attention. As you can imagine the sand hill cranes became my muses for the Velociraptor. The precise head turns and careful steps they would take definitely made their way into the film. Their overall graceful nature was something I always tried to keep in mind when performing actions on set, even during fight scenes. The cranes wouldn't expel any more energy than was absolutely necessary, thus my movements needed to be precise and economical. It's easy to resort to erratic movements when the character you're portraying is supposed to be vicious and dangerous. However, erratic movements are simply not part of the physical grammar of cranes. The mental image of the upright head and neck of the cranes helped remind me on the set that this isn't simply a killing machine, but rather a thinking, breathing animal. I'm most proud of the more quiet moments of the Velociraptor, where the stoic nature of the cranes really comes through. In one scene the Raptor comes across an actor in a ridiculous outfit, which completely confuses him. I recalled the slight head tilt that the cranes would do when a foreign noise was heard. I replicated this action on the set and got big laughs from the crew. This was precisely the reaction we were after and it serves as a wonderful comedic moment in the film.

During the theoretical phase, a biomechanics performer would observe how smaller creatures interact with larger creatures, paying special attention to the physical proximity of creature in relation to the other during an assortment of interactions. This will be invaluable when making acting choices for a motion capture character, such as Kong. They also have observed how tense certain muscles get on the smaller animal when pursued by a larger predator. They are aware of the movement of each part of their body in the performance of any task, and can conjure up this muscle memory at a moment's notice. They also have observed how others move in different terrains and have learned to emulate this movement on stage. That gives them an understanding as to how their character would move about this virtual jungle. As said earlier, Biomechanics "arms the imagination," grounding it in a firm understanding of the movement of the body in the real world, and thus allowing an actor to convey a truthful performance in a virtual world (Hooks 44).

The studio space where the Raptor shoot took place had a very smooth flat floor, similar to most mo-cap soundstages. While most of the scenes involving the dinosaur did indeed take place on smooth concrete surfaces, there were several scenes that called for the Raptor to run and jump over rocky terrain. To help develop a keener awareness of how my body reacted to different running surfaces I would take jogs around town. The jogs would take me through the middle of the city, up and down hills and even through heavily wooded areas. I really tried to isolate how certain muscles in my legs would react to the varying surfaces and how much harder it was to maneuver over the rocky terrain as opposed to smooth sidewalks. I found that not just my legs, but the muscles throughout my entire body would react quite differently depending on what surface I was running on. Certain muscles would be tense on concrete surfaces and others

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would tighten over the rocky terrain. I found my entire body posture at times would change

depending on how much energy was needed to travel across the surface. This complete body

participation is precisely what Meyerhold was getting at with his "Principal of Totality." This

awareness proved invaluable on the set, as I was able to recall how my body would react to those

surfaces even if we couldn't physically replicate the terrain on the set. This "field work,"

coupled with the observation of the sand hill cranes formed the basis for the theoretical training

in Meyerhold's biomechanics. If I were developing a curriculum of study in biomechanics I

would make it mandatory for the students to perform a number of rudimentary physical activities

and then ask them to report on what each part of their body was doing or felt like during the

activity. If the action is lifting weights, I would ask them what the muscles in their legs were

doing. If they were jogging I would ask what their arms were doing. Trying to isolate parts of

the body that aren't doing the brunt of the work I believe really helps you gain a keener sense of

your body as a whole and ultimately helps in replicating physical actions in a less natural

environment, like a motion capture sound stage. Looking back on my film experience I wish

there had been more time to study motion in the field. Observation exercises in grad school,

where we would observe the walks of other students in the class were extremely helpful not just

in developing a more critical eye for movement but also to pick up habits we may posses

ourselves. If I had the film to do over again I would have spent more time preparing for the role

with Meyerhold's theoretical portion of the training.

Acting exercises used in Biomechanics train the performer to plan his space in relation to

others around him. He is also well aware of any movement of his body when interacting with

others on stage. By retaining this muscle memory, it is easier to recall what each muscle in the

body was doing in the performance of a particular task. A performer can more truthfully pull off

the illusion of interacting with others, even when others aren't actually present (Lavi 220). In

fact an etude is perfect practice for work on the motion capture stage. The intention, realization

and reacting acting links must be well established in the actor's body and mind since the actor

usually will be performing the scene himself. If a performer on the motion capture stage is

reacting off of a performer who was shot at an earlier time, it would behoove the motion capture

actor to be able to recognize an intentional signal from another actor. The performer isn't in the

physical space with the motion capture actor and thus they can't discuss the performance and

their acting obstacles ahead of time. But by viewing a video of their performance, the motion

capture actor can plan their reactions, accordingly. A slight head turn or even a blink of an eye

may be all the performer in the video provides the motion capture actor. Clearly these cues

could be overlooked, resulting in an incohesive/untruthful scene. As Meyerhold puts it, "without

intention, both the performer and the audience are lost" (Braun 169). However, a performer

well-versed in Biomechanics will be able to pick up on these subtle cues, and therefore help

make the two performances blend more seamlessly into one action. Likewise, if the motion

capture actor is being shot first, it will be important for the actor to make his intention clear to

the performer who will react off of him at a later time. The more an actor can read the other

performer's body language or provide a clear interpretation for the other actor to react off of, the

more seamless and "gripping" the scene will be (Hooks 50).

On the set of *Flashback* I was in the unique position of being the director of the film as

well as the virtual character performer. I was there for every take and instructed actors who had

to interact with the dinosaur on when to look and at what time to react. I was aware of the acting

cues they were doing because I was instructing the actors to perform them. I understand that not every mocap performer will have this advantage, but the entire experience really got me thinking about how to relate Meyerhold's acting links concept to students studying the motion capture medium. Having experience behind the camera as well as in front illustrates the importance of acting links in a brand new light. Obviously a performer would be concerned about providing these links in their movement but seeing how everything gets assembled from a director's perspective presents the entire concept even more clearly. It's like observing the motions of another actor or animal in the field during the theoretical portion of biomechanics training, which in turn informs you of certain traits and habits in your own movement. Having that outside perspective is sometimes the only way to illuminate short comings in our own training. It's also less invasive to come to the realization ourselves than have an instructor scold you on how you're doing the motion wrong. I came to several realizations about my short comings simply by observing the other actors performing their side of the mocap scene. When constructing a curriculum for motion capture performance I would make it mandatory for students to direct mocap scenes as well as act in them, to gain a better perspective on the process as a whole. This is absolutely vital not just in the pursuit of a more truthful performance on screen, but also to an understanding of the medium in general.

In addition to being able to perform these acting links without the aide of a partner, a motion capture performer must be able to break down these acting links into different parts of the body. Typically, due to lack of cameras and sensors, an actor's body movement will be recorded separately from their facial movement. Depending on the budget of the shoot this might be broken down even further, where the top part of the body is captured first and the bottom half

recorded later (Trappl 97). The actor must be aware of Meyerhold's Principle of Totality in thinking through how each part of the body was affected by the performance of a particular acting link. These movements will then need to be compartmentalized to a specific part of the body depending on the needs of the shot. Furthermore, the actor must be able to perform these movements precisely the same way from take to take, otherwise the entire movement of the character won't seem cohesive. To complicate things even further directors will sometimes cast two different actors to play the same role. In the film *The Social Network* actor Armie Hammer was hired to perform as character Tyler Winklevoss, but only as the character's head. All body movement were provided by Josh Pence. No matter how complicated the break down of movement gets, the end goal remains the same, to create a truthful, cohesive performance. Meyerhold claims that to be a true master of the craft, an actor must be mentally aware of every action his/her body makes and be able to perform these actions continuously with mechanical precision (Braun 169). Clearly a motion capture performer would have to be mentally aware of every movement they make and be able to break down these movements depending on the needs of the shot. In the case of *The Social Network*, Armie Hammer and Josh Pence had to be able to break down each other's acting links so that they can be in complete synchronization with each other. Training in the theoretical phase of biomechanics would allow actors to break down video of other actor's movements and plan their movements accordingly. These movements would become part of the actors' muscle memories and thus be something they can perform take after take. Because students of biomechanics are aware of every movement their bodies make, these unique acting challenges are easily over come.

Any performer providing the actions for a virtual character on the motion capture stage must have a firm idea as to how his/her particular character would be motivated, and how his/her particular body would move. For a character like Kong, an actor can base his/her movements off of a gorilla, which a Biomechanical actor would have observed during the theoretical training period. He or she would have observed both the similarities and differences in muscle structure and movement style, and would translate this observation into muscle memory when trying to emulate that animal's movement habits on stage.

For the Raptor I needed to adjust my typical freedom of movement to accommodate for our very different body types. A Velociraptor has much shorter arms than a human does so wide arm swipes were not possible. There was one shot in the movie that called for my character to slash at a victim with my claws. I performed the motion and everyone on the crew felt confident with the performance. When the movement was applied to the computer generated model it became apparent very quickly that the swipe I had made with my arm had too large an arc to it. The Raptor model wasn't physically able to replicate this motion. The result was a strange hybrid of my motion and what the Raptor was able to accommodate that just looked ridiculous. This is another instance where I wish more attention had been paid to my theoretical training. I really should have studied the anatomy of the dinosaur and even perhaps performed daily physical activities keeping my arms closer to my body. On set I had special slings made to keep my arms closer into my sides, and restrict body movement. They certainly worked but I always felt like it was a bit of a cheat. A performer, given proper training in biomechanics, could easily accommodate this acting challenge without the assistance of a sling or special props. This of course would be ideal because crews wouldn't always have something like that to accommodate

the actors. Stopping to rig that sling for the performance cost us time in the space, and of course time is money. I was fortunately the director of the piece so I wasn't fired, but I could easily see a situation where the difference between employment and termination could be whether you can achieve the desired effect yourself. It's dangerous of course to simply assume things, so plan for the worst case situation. It seems you're pretty well covered for most problems on the set if you're well versed in biomechanics.

In the case of Kong, this system can translate well enough since this kind of character could exist in nature. The challenge is greater, however, when the character has no basis in reality. Gollum, in *The Lord of the Rings,* is a character of pure fantasy, for which no model exists in nature. Again, Andy Serkis was left with the daunting task of bringing this character to life on the motion capture stage. How can a gripping, truthful performance be achieved when no one truly knows how Gollum would move? Again Biomechanics equips the actor with the right tools for the job. It is true no Gollums exist in the real world, but many other creatures do. By combining mannerisms of different species, creative people can often devise a believable performance. Serkis stated that he observed how cats walked, and how chimpanzees climbed, to create the basis for Gollum's movement. When an actor places himself or herself in a Biomechanics' frame of mind, he or she becomes not only keenly aware of particular movements of an animal, but also the similarities between movements of different species of animals (Braun 168). It is the seamless combination of these movements that forms the basis for a truly unique character. The combination of the movement of course must be seamless; otherwise, the character will not be believable. Thus, attention to movement and control of one's body in performing these movements, become vital. A performer must also be intuitively aware of the

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connection between the physical movement and the psychological state of a character. Only

when a character is properly motivated to behave and move in a certain way, is a truthful

performance achieved. It is this very connection between the physical and mental state of the

character that is given special emphasis in Biomechanics (Hooks 51).

As mentioned before, I emulated the movements of sand hill cranes to capture the

graceful movement of how a Raptor would potentially move. For moments of heightened action

I combined several mannerisms of my dog into the mix. Sand hill cranes primarily eat tiny

insects, and due to their physical makeup do not chew their food. Rather, they gulp it down with

a thrust back of the head. A Velociraptor, on the other hand, has very powerful jaws and sharp

teeth made for tearing into large prey. Clearly the bird's mannerisms wouldn't work if the shot

called for the dinosaur to be eating someone. I observed my dog playing with one of his chew

toys, and how he loved shaking and tearing it into submission. As he clamped down onto the toy

he would violently toss it from side to side, as if trying to break any bones the toy may have in its

body. He took a great deal of delight in shaking the toy as hard as he could, often times letting it

fly across the room only to pick it right back up and shake it some more. After tossing it around

he would then drop the toy on the ground and plant his right foot on top of it. Finally, with the

toy held down properly he would bite into it and pull upwards until the toy ripped into pieces.

This sequence of movements made their way into my dinosaur character. I found that when the

Velociraptor was stalking his prey the crane was a perfect model to emulate, but when he was in

mid attack I copied the movements of my dog. So basically the dinosaur character's movements

became a mixture of a sand hill crane and a golden retriever. Bizarre mix, I will admit, but the

production team was quite pleased with the performance.

Where biomechanics as applied to motion capture performance thrives for me is in the specificity of character movements. Each action is well thought out, and can be repeated with mechanical precision take after take. The character and their particular motivations can be communicated successfully to an audience through the actions being performed. What is unique about motion capture performance however is that an actor must not only convey a character's personality but also the particular location that character occupies. This must be done solely through an actor's movements since they perform without the aide of a set. It is understood of course that the virtual environment the character occupies will be added later in post production, but if the movements of the actor don't correspond to the visuals of the environment there will be a major disconnect for the audience. It could be argued that some etude exercises require performers to develop a sense of place through movement. However, the end goal of an etude is to help develop muscle memory, not to reveal a particular location. The focus of an etude is the miming of a particular task (shooting a bow and arrow, fishing, etc.) with very little attention being paid to the location the activity is taking place in. While the theory works well in terms of conveying character motivations it falls short in the communication of a setting, which is vital for motion capture work. In my opinion we must look elsewhere for a theory that helps in "the revelation of the unseen world" (Lust 69).

MOTION CAPTURE AS IT APPLIES TO CORPOREAL MIME

Both Motion capture and Corporeal Mime are art forms that call for the creation of something out of nothing. Meaning is conveyed solely through the movement of the body without the aide of props or music. One major difference between the two mediums seems to be that motion capture does make use of the actor's voice and corporeal mime most often is a mute art form. I find it interesting however that Decroux himself never wished to separate mime from the spoken word completely. He simply meant for one to eventually complete the other, which is essentially what you have I believe in motion capture performance (Lust 77). The computer animator's artistry is guided by the physical movements of the performer on the motion capture stage as is often the vocal performance, which is recorded later in postproduction. Everything is dependent upon the initial motion the actor provides.

How the audience perceives the work is truly the biggest difference between the two mediums. Because no props or scenery are used, an audience member for a corporeal mime performance must engage their imagination to fill in the gaps. It becomes an exercise for the audience in interpreting the abstract, finding meaning out of absence. This is not to discredit what the corporeal mime performer is doing of course, for if mimes are doing their jobs correctly we as the audience do have a clear idea of the meaning of the movements and storylines being conveyed. We are however, not shown in a movie sense, concrete images that do the imagining for us. Motion capture of course is a medium that belongs to film, thus once all the computer animation has been applied we as the audience are not presented with abstract movements, but rather a completely developed character, interacting in a fully realized virtual environment,

surrounded by all the added accoutrements of dialogue and music. There is no guessing on the part of a movie audience because the director has already selected exactly what is being shown and how it is displayed. While an audience's perception is different for the two mediums, how a performer approaches a role for both is not.

Decroux's corporeal mime wished to strip the performance art form of any unnecessary aesthetic accoutrements. "To add is to make a mess, to restore the original. What is rich in art? Not a mixture, but rather a purity, a single thing which penetrates deeply, a single thing that leads to all things Man governs" (Bentley 28). Therefore, while a performer is merely acting out a single gesture, that one action is responsible for creating a multitude of images in the audience's collective imaginations. This one movement will lead the audience to imagine whole new worlds, and fully realized characters. The performance of motion capture includes this principle quite nicely. The actor is working without the aide of a backdrop or props in most cases. The setting, actions and motivations of the character are being expressed solely through the actor's movements. Those on the creative team elaborate on these movements, like a typical audience would and imagine the motivations of the character and where they are located based on the actor's movements. As stated before, corporeal mime is leading our imaginations in a specific direction, so what we conceptualize is precisely what a performer wants us to see (Cohen 80).

On the set of *Flashback*, it became clear very quickly that my audience was in fact the computer animators who would composite the Velociraptor into finished shots. I had to inspire their imaginations with my movements. Every movement I made on the set was certainly a conscious decision, but sometimes they would interpret a look or turn differently than I had originally imagined it. One scene in the movie involves the dinosaur walking across a stage in

front of a large crowd of people. The dinosaur is stalking his prey on stage but when he emerges

from the wings and looks out to the vast crowd, it disorients him a bit. It became my job to

convey this large massive stage and the crowd of people sitting in the audience while at the same

time not losing site of my target creeping away from me. To help convey the space the steps

became a bit more timid and the dinosaur would glance to the side and up into the fly system to

get a bearing on his surroundings. I had a very clear image in my head while I was performing

the scene, and I definitely think that came across in the performance. What was fun to see

however, was how the animators interpreted specific moments in my movement. In post

production, when compiling the Raptor footage with the virtual set and crowd elements, the

animators sometimes would composite things very different from how I had originally imagined

it. These were often very subtle differences but did deviate from my original mental images

nonetheless. The difference between a corporeal mime and their audience, and a mocap

performer and their audience is truly fascinating. Both the mime and the motion capture

performer are involving their audience in the imaginative process. They are guiding the

collective imaginations of the audience towards specific images and situations of their choosing.

The specific images that arise however will differ slightly from one audience member from the

next. Unless there is a talk back after a mime performance asking specifically what images were

brought to the audience's mind, the mime will never know exactly what images arose for them.

Even then you're merely dealing with descriptions of images and not snapshots of their

imaginations. Computer animators who composite the work of a motion capture performer

however are providing a fully rendered video interpretation of the mental images that arose

during your performance. You can see specifically where you both were in complete

synchronization and where images weren't expressed clearly enough. Often times when they

had interpreted something different than how I originally conceived it, the result would still work

for the performance as a whole. Sometimes it would even be a better idea than what I originally

conceived. The entire process was just so fascinating because while viewing these final shots, it

literally was like jumping into the imaginations of your audience members and seeing precisely

how your work affects them. In building a curriculum for study in the motion capture field I

think it's essential to include sketch artists and computer animators in the studio space when

learning corporeal mime. It's easy to get a general sense of space or idea across to an audience,

but how do they interpret specific moments in your performance? If the artists are there, they

can sketch out quickly what kind of space they imagine and what kind of things they believe you

are looking at. How closely this relates to the mental images in your head can help continue to

shape your performance and your study of the field. If class work is video taped, computer

animators can analyze the play back and take you beat by beat explaining how they interpreted

each of your specific reactions and what they imagine actors around you are doing. Just because

what they imagine deviates slightly from what you think isn't always a bad thing. As said before

it can often improve the final result. However, having the people who will in fact serve as your

audience and be responsible for interpreting your work in the classroom space at an early stage in

your development I think would be incredibly helpful. Their specific feedback can illuminate

shortcomings in a student's mime education.

Decroux's main objection to the motion capture process would most likely be with the

end result and specifically how the audience perceives the work. During the post production

process the performance of the actor is applied to a computer generated model that better

matches the actions being performed. This model is also then placed in a fully realized virtual

setting. What began as a "single thing that leads to all things Man governs" has now been added

onto extensively (Bentley 28). The imagination is less necessary, because the film has fully

realized a final image for you. In a sense they did the imagining for you. How can Corporeal

Mime be used in a medium that seems to completely contradict one of Decroux's chief

principles, that true art is not a mixture of elements but rather a purity of movement (Craig,

Puppets 3)? During the motion capture process an actor's performance can lead to changes of

the computer generated model or even the virtual environment they inhabit. As mentioned

before, skeletal structures of the model can be completely reimagined to better fit the inspired

performance of an actor. Skeletal reconstruction is in fact one of the five stages of motion

capture production (Varadarajan 12). This shouldn't be seen as a detracting from the original

performance, because even with slight alterations to the model the essence of the performance

stays the same.   I honestly see it as making the performer a more vital part of the creative team

because the artists are in fact changing the model to better match the actor's performance. The

character model of *Shrek*, for example, was completely re-imagined at the last second to better

match the performance of actor Mike Myers. Thus the performance of the actor inspires the

imagination of other artists. I had a similar situation on the set of Flashback, as the model for the

computer generated dinosaur was adjusted ever so slightly to better accommodate my size and

movements. Originally the dinosaur was built to be around four feet tall, which in fact is how

tall a Velociraptor is normally. After seeing me perform the movements the modeler thought the

dinosaur should in fact be taller. The height changed from four feet to just under six feet tall. In

the modeler's opinion this made the dinosaur much more menacing and matched my specific

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body type and my movements more closely. As a motion capture performer you are very much

apart of the creative process. Your input and interpretation goes a long way in the realization of

a virtual character. You are not, as many fear, simply a cog in a machine, but rather fully apart

of the collaborative process. So while a theatrical audience's interpretation of the work may be

offensive to Decroux, the process of getting it to the screen is one of imagination and discovery,

which I think is very much in line with Decroux's mode of thinking. It is in fact the single action

of the performer that drives all of the computer images that will be added later.

Another element of mo-cap consistent with Decroux's concepts is the idea that a motion

capture performer can convey any kind of character, regardless of body type, sex or even species.

Decroux detested realism and felt that theatre couldn't produce art if it wished to evoke a

particular thing by an identical thing: the fat person by the fat person, change of setting by

change of setting, etc. Chennevieere sums it up perfectly, "the world is present entirely in each

object" (Decroux 45-48). Decroux clearly sees his Mime as capable of infinite expressions and

characters. This is precisely the freedom the motion capture process provides a performer.

The film medium, which champions the idea of type casting, has finally in my opinion

become more accessible to all actors. The technology allows a performer trained in corporeal

mime the ability to portray practically any character they want on screen. At the age of 51 Ray

Winstone got to play the title role of *Beowulf* in Robert Zemeckis' 2007 film. He wasn't the

physical type, as Beowulf is practically superhuman in strength, nor the right age, as the

character is in his early twenties, but again thanks to the technology the result is a seamless blend

of Winstone's performance with realistic computer generated graphics. Ironically the end result

of what you see on screen is essentially realism. Computer graphics artists do not typically take

a symbolic or stylistic approach in portraying characters and settings but rather try to present them in the most realistic fashion possible. Again, however, if we look at the acting process on its own it can be quite contrary to what realism dictates. I believe the acting process itself embodies much of what Decroux's philosophy preached. It's when we analyze the end result on screen that we run into disconnects.

In my opinion Decroux seems to have taken theoretical aspects of Edward Gordon Craig's uber marionette concept and made them accessible in practice to his mimes in training. The exercises that put these theories into practice are vital to motion capture performers. As stated before both Decroux and Craig were striving for the ideal state of a puppet on stage. Meaning the performer would no longer be illustrating a character or idea, but rather fully embodying them. Just as a puppet perfectly fits the part it was made for, so should an actor perfectly fit a role and fully embrace an idea. To achieve this, Decroux wished to wean actors away from their reliance on illustrative body movement. Performers, in his opinion, too often used their face, arms voice and hands to show a point rather than giving ideas full life and meaning with total body involvement. This certainly seems to be the case when beginning performers are robbed of things like props, scenery and voice.

Decroux achieved this "puppet like state" in his students by isolating them from their typical tricks of the trade. Props, scenery, use of voice and even varying elevations on stage were removed. Actor's faces were even covered with a mask or veil during exercises. Thus Decroux's mime conveys varying levels of terrain, along with all ideas of location and character solely through the use of the body (Hooks 22). This is precisely the environment motion capture performers find themselves in. Motion capture cameras don't pick up audio and typically actor's

faces are recorded later, so essentially they are left with only their body to convey meaning. Varying platform heights are typically not used on the mo-cap stage either due to their obstruction of camera angles. If a sensor passes behind a platform the camera can't record the movement. Thus an actor typically is required to convey varying heights on level ground. Just like a puppet, the performer is required to convey a sense of place solely through their movements. All of these would be obstacles on the motion capture stage are simply part of corporeal mime training.

Developing a sense of place was always a struggle on the *Flashback* set. Due to the limitations of the soundstage, the performance space was extremely small. Trying to convey large environments, whether they were big theatres, crowded theme parks or long corridors, was a challenge. Shooting out of sequence increased this difficulty. We would jump from one location to the next in rapid succession, and, unlike a typical film shoot, the performance space wouldn't change. I can easily see how one could fall into the trap of conveying each environment exactly the same. This of course will ruin the final result when compositing the shot. Much of my success in conveying space I attribute to my graduate movement classes. Exercises where we were asked to "fill" the room or "dominate the space" resulted in my class making their body postures as intimidating as possible and stretching out their arms and legs as wide as they could go. This of course was an exaggerated interpretation but you could witness first hand how the shape of your body goes a long way in conveying what kind of space your character occupies. I always began work on the set by doing very large exaggerated movements. As said before this was partly to help build muscle memory in the repetition of specific movements, but it was also to help bring me into the right frame of mind when it came to the

performance space. If I was supposed dominate a large stage I would walk around the set being

as large and as intimidating as I possibly could be. If I was to run down a cramped corridor, I

would make my body very small and creep around slowly. These exaggerated movements really

helped ground me in the right virtual space. If I had the experience to do over again I would

have loved more exposure to mime. Conveying space through movement is so incredibly

important and when it's not performed just right you can spot it in a virtual performance. Since

the experiences I've had on the *Flashback* set I've become incredibly critical of other's mocap

performances. In many independent films I can tell virtual characters have no clue what kind of

space they are in. The live performer to their side occupies a completely different space than

they do. It's a very common problem in film that utilizes the technology. As it becomes more

and more common place to utilize the technology it will become absolutely vital for performers

to have a corporeal mime background.

A major reason studios have latched onto the idea of motion capture is that it cuts down

on production costs. Because the movement is being applied to a digital puppet anyway, actors

can be shot months apart and integrated into the scene later in post production. While this proves

advantageous for the studio, it provides significant challenges for performers (Hooks 33). This is

where knowledge of Decroux's contrepoids or counterbalance would prove invaluable.

Performers well versed in corporeal mime have studied extensively the muscular system of the

body and understand how certain muscles expand and contract when performing a specific

movement. Knowing which muscles to engage on stage is of course what gives off the illusion

of tension or effort (Lust 79). Understanding how the body counterbalances itself when thrown

off course by a punch or trip is what will prevent a mime from appearing "stiff" on stage.

Because computer animated films are ultimately trying to give off the illusion of performers and objects existing in the same real space it only makes sense to have performers well versed in this mime practice. The acting challenges and process for both are almost identical anyway. Without extensive training in Decroux's technique it will become painfully obvious that performers in a CG film were recorded at separate times and don't in fact inhabit the same space. They might as well appear in separate films.

Corporeal mime often calls for the depiction of non-human characters. Decroux's *Les Arbres* displayed the inner life of trees and thus the performer's role was that of a tree (Zarrilli 35). Motion capture performance is of course a medium that allows actors to play against their type and often against their species on film. Computer animation allows for a visual transformation on screen, but it is up to the performer in the motion capture stage to bring the part about physically. Decroux's training in large abstract movement is perfect for this. Students of corporeal mime, like students of biomechanics, go through lengthy periods of studying the movements of animals in the wild. The idea is not to copy this movement identically but to capture its essence so that it would be instantly recognizable on stage (Zarrilli 34). The major difference between Decroux's approach and a modern film approach would be that Decroux pushes for more human elements in the character, allowing for the essence of the animal or non-human character to be depicted in a more human fashion. Obviously the performer in *Les Arbes* didn't give an exact interpretation of a tree, because that would result in the actor simply standing still for the entirety of the performance. The spirit and essence of the character was there but not carried out in the strictest sense. Film, in contrast, often pushes for a more realistic approach to the character. Andy Serkis' interpretation of the forty foot ape King

Kong is a very close representation of how silver back gorillas behave in the wild (Trappl 24). Regardless of how literal the interpretation is, I believe the study that goes into preparing for the role is extremely valuable. Understanding the difference in physical structure between performer and the virtual character they are bringing to life is going to prove quite important. Decroux himself labeled his corporeal mime technique as being "Promethan in nature," because it strives to push performance beyond the confines and limitations of our own bodies (Gelabert 67).

Similar to Meyerhold, Decroux taught his actors how to isolate movement in the body. Known as "geometric exactness," Decroux claimed that every action is a conscious movement and therefore parts of the body can be isolated if the narrative calls for it. This ability will prove invaluable to performers on the motion capture stage. Where Decroux's philosophy falls short however, is the ability to repeat these actions take after take. Meyerhold's idea of mechanical precision and muscle memory seems to be the missing piece of the puzzle. I would suggest a combination of Decroux's geometric exactness and Meyerhold's muscle memory aesthetic. This seems to be the best course of action when it comes to breaking down movement into multiple takes on the motion capture stage.

The number of cameras we had available on the *Flashback* set were quite limited. Thus capturing my specific movements had to be done in multiple passes. Sometimes motion had to be isolated to just my face, while at other times my right foot became the primary focus. It's not hard to move individual parts of the body, but what is difficult is keeping in mind what other parts of your body were doing the first time you performed the movement as a whole. If you isolate everything, without keeping track of the body over all the result will be extraneous movements of parts of the body that aren't necessarily attached to anything. It stops being

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simply one movement and becomes several disconnected movements occurring at the same time.

The simple act of walking not only involves the movement of one's legs but also their arms, their

back, and really minor adjustments to all parts of the body. Thus trying to make the movement

part of a whole and not just simply an action of a separate entity is always something motion

capture performers have to struggle with. My initial reaction was always to simply repeat the

action as a whole, involving my whole body. This sometimes was appropriate, but other times

were impossible due to how close the cameras needed to get to capture my movements. For

example, I can't be running full tilt if the camera needs to be a foot away from my face capturing

its expressions. Decroux's concept of geometric exactness and isolating individual parts of a

single action was constantly on my mind.   During the shoot I was constantly breaking down

everyday actions into individual parts. What does my head do when I'm eating a bowl of cereal?

How does my right foot respond when I sit down in a chair? These questions seem ridiculous

but this mode of thinking I think is vital when it comes to motion capture work. You will be

required to break down movement and the more aware you are of your own body and the actions

it is performing the more convincing your overall virtual character will be.

One of the staples of Decroux's philosophy is the idea of a "mime grammar," a specific

way to move the body to help evoke ideas and imaginary landscapes. "Decroux believed that a

truly expressive pose, a meaningful gesture, is an exterior manifestation of inner movement that,

rather than depicting the particular, conveys the ideal and the universal in man" (Lust 71). These

movements are often times more like a dance and not necessarily reflective of "realistic"

movement. They are, however, perfect for conveying large ideas and painting vivid locations.

The ability to communicate a sense of place is absolutely crucial on the motion capture stage.

CG graphics certainly go a long way, but if the movements of the performers do not correspond to the virtual environment their character occupies, the result will be a bizarre disconnect for the audience. This often occurs in low budget blue screen films. The blend of a virtual environment with a live actor can be visually seamless but it's clear that performers all too often posses no sense of place. They don't understand/see the virtual landscape they inhabit, and therefore we as the audience can't fully buy into their narrative. Understanding the landscape and being able to convey that through movement is precisely what a corporeal mime does.

Varying elevations, rough/smooth terrain, and particular kinds of weather are all conveyed solely through the movement of the actor. If the corporeal mime can communicate these ideas solely through their body, the combination of their performance on the mo-cap stage with the computer generated backgrounds that will be added in post production is truly exciting to contemplate. The performance and background will blend seamlessly because it's clear the actor understands/sees the landscape their character occupies. While this philosophy is perfect for conveying large ideas like "sense of place" it falls short in the ability to convey subtle character motivations. As mentioned before, Decroux's mime grammar is much more dance like in style and less realistic in presentation (Lust 24).

Film covers a wide array of genres, but most of the time a performance grounded in realism is the desired result of a director. The actor must be able to provide a subtle, realistic performance of their character, and at the same time communicate an understanding of place/environment through their movement. I liken this to the dual consciousness performers must posses on stage, where actors must be focused on their performance while at the same time be constantly aware of the audience. Being able to focus on both small details and large

concepts at the same time is precisely the challenge a motion capture performer has. Thus,

Decroux's philosophy in my opinion is an answer to part of the equation.

MOTION CAPTURE AS IT APPLIES TO CRAIG'S ÜBER-MARIONETTE

Although film is essentially a collaborative art form, that fact has not stopped producers and directors from wanting to control every aspect of production. The limitations of silent era films were actually an advantage for the control freak who happened to be a director. While the camera was turning a director could talk an actor into a performance and thereby get precisely the look, action, gesture, and expression they wanted on the scene. Even in the sound era, it is the director who determines if another take is necessary and although many directors will grant an additional take if an actor with some clout asks for it, it is still up to the director to print the cut and ultimately chose what cut he or she will use in the finished film. Motion capture has provided an opportunity for the auteur to not only write, director, and play a part in his own film, but potentially play every part in his or her film. If like Ridley Scott or Tim Burton this director has design abilities as well he or she could finally realize the complete unity of creative control that has so long eluded the director. Woody Allen, would be green with envy.

Edward Gordon Craig's objective concerning the theatre was the "evocation of aesthetic pleasure derived from the presence of true imaginative beauty" (Lyons 258). In order for all parts of the production to be aesthetically pleasing, he felt a single vision needed to be implemented. Thus all elements of a play had to be the vision of a single artistic director. Anything that potentially could threaten that vision could ultimately hurt the production as a whole. The biggest variable in a production for Craig were always the performers. If actors were untrained their performances could be wildly unpredictable. An audience member may interpret their character a certain way one night and perceive the performance completely the opposite the

next night. The entire meaning of the play can be lost as a result. In addition, an actor's looks can be manipulated to a degree, but not molded in the same way a set can be constructed. Thus a director doesn't have complete control over an actor's looks in the same way they have control over the aesthetics of the set. If the goal is complete aesthetic control of the production, actors pose a serious problem.

Craig's concept of the Uber marionette was a way to combat this destructive variable. A puppet's physical makeup as well as its movements could be manipulated to the director's liking. The Uber marionette was never fully realized in his life time, but Craig saw examples of his single director approach in the film medium. While he never worked with him directly, Craig seemed to be greatly influenced by the work of Charlie Chaplin. Aside from the beautiful physical grace Chaplin possessed on screen, Craig was captivated by the fact that artist acted, wrote and directed all of his films. The man certainly did have complete aesthetic control of his productions. Why Craig never ventured into the film medium is baffling to me since his theories apply so much easier to the field than they do to theatre. I think however, had he been alive to see the development of the motion capture field, Craig may have departed the theatre world altogether.

The mo-cap process, is nothing short of the complete realization of Craig's Uber marionette dream. Finally, in the 21st century, a director has complete aesthetic control over all the elements, including the physical makeup and movement of the actors. Every aesthetic element in the production becomes the product of the director's imagination. In a completely virtual environment, populated by mo-cap virtual characters it certainly becomes the "evocation of aesthetic pleasure derived from the presence of true imaginative beauty" (Lyons 258).

Flashback was very much a collaborative process, primarily between myself and the two

other producers, but as the director, I was very much able to mold the production as I saw fit.

The entire film was shot against a blue screen, which meant that the world our characters

inhabited had to be created from scratch on the computer. An entire digital world was created

from the ground up and we had complete control over every aspect of it. As the film was being

pieced together it became apparent in certain scenes that the action would play out better at night

rather than during the day time as originally conceived. Such a request, to turn footage that was

already shot for day to night would typically be impossible. With a blue screen film however it

requires minor color adjustments to the footage, and brightness/contrast adjustments to the

backgrounds. It literally is a few clicks of the mouse. This kept the creative process of

discovering what works best for the film very much alive till literally having to burn the DVD of

the movie. Typically directors have to "lock print" or say there will be no more changes to the

edit so other departments (foley, ADR, etc.) can begin their work. Because the process of

changing the visuals is so relatively easy in a blue screen film, these adjustments can be made

quickly and other departments can be notified immediately about the change, rather than being

told weeks or months later as would typically be the case. It makes sense to me that a director

would be able to make the most informed decisions on effects shots when he or she sees the

shots completed. However, this is not typically the case. Due to the complexity of computer

effects and the time it takes to make adjustments to shots, directors typically have to make final

decisions based on rough mock ups of scenes or even sketches, and by the time they see the final

result it is to late. Changes to our virtual environment took time but in the grand scheme of

things could be done very quickly. Thus I was able to see the movie in its complete visual form,

digital backgrounds and all, and then go back into the movie and adjust things that I thought could benefit the film as a whole. This process makes logical sense to me, and I'm baffled by how directors accomplished epic effects driven films in the past. George Lucas must have had a great deal of confidence in his effects shots for the original *Star Wars*, because I know his effects team didn't get all the shots into the edit till literally days before they had to premiere. Thus he didn't see these shots till it would have been too late to change them. The kind of control I was afforded proved to be both a blessing a curse and as a result I can see the positive and negative sides of Craig's theory. With complete control of the visuals, you are only limited by your own imagination. As a result you can become lost in the smaller details of the film and lose sight of the bigger picture. The effects need to serve the story, not the other way around. It's incredibly important to be surrounded by people who are quick to argue a bad decision and not be working with a bunch of "yes men." I have to admit however, with the degree of creative freedom I was given, it truly felt like the embodiment of Craig's dream. In addition to the backgrounds, the aesthetics of the dinosaur I played could be manipulated as well. It was fun making notes on what the character I would be playing should look like. There were no restrictions in terms of height or weight and thus nothing was dependent on my physical makeup. The velociraptor could be changed in any way we saw fit, so it became less about adjusting the character to the performer, and more about what look of the character serves the story best. As mentioned before elements of the design changed later to accommodate my performance, but the look of the raptor certain doesn't resemble me at all. During the design faze details like the skeletal structure and scales were adjusted and readjusted until the virtual character looked and was able to perform precisely the way I wanted him to. It's a little surreal, because not only are you

designing/creating your actors, but you are also in complete control of the world they inhabit. It's quite easy to get a God complex. No credit should be taken from the incredible design team and animators of the velociraptor, as the entire process was very collaborative, but the degree of control a director has in this situation is bordering on ridiculous. As far as communicating a single vision on the screen, I can't think of a better way to do it. It truly is the complete realization of Craig's dream.

Unlike Decroux and Meyerhold, Craig never offered many concrete exercises or examples on how to achieve his theoretical goals. Because the Uber marionette was never fully realized in his life time, Craig couldn't provide a practical means to obtain it. Not being able to back up his theories through any real examples has always left Craig vulnerable to criticism. If the goal is to begin developing a new form of practical acting training for performers who wish to enter the motion capture medium, why include Craig's theoretical ramblings? While Craig provides little in the way of practical knowledge to students, I believe his line of thinking, and the way he approaches theatre, applies more directly to the motion capture field than any of the other theorists. I fully believe that Craig's theory concerning the Uber marionette is in fact fully realized in the motion capture medium. Whether the field was developed consciously or subconsciously with Craig's writings in mind, the similarities between the two are just too numerous to ignore. Craig's writings, in my opinion, provide an over arching theoretical framework for this new acting school. The different physical requirements of the field have been well established, but an actor I believe must understand this field from a theoretical basis as well.

The goal for an actor of achieving a "truthful/gripping" performance certainly remains the same, but the way a performer approaches a role mentally changes drastically. Unlike other

forms of performance, I believe it's important for a motion capture performer to approach a role partly from a director's standpoint. The motion capture field is so director centered; it would be a great disadvantage for a performer not to understand that hierarchy on the set. Beyond just simply understanding the chain of command, it's important for actors to understand why, and ultimately see how their collaborative efforts are still vital to the process. Craig's theories provide this understanding beautifully. Craig speaks at length about "intelligent performers" and how they are vital to the production of true art. Actors must be intelligent enough to understand that the director's vision, not a performer's personal interpretation of the character, is the most vital element when constructing a narrative (Lyons 258-260). As explained numerous times in grad school, an exercise cannot be an end in itself. A student must understand why they are performing certain actions; otherwise the exercise becomes a meaningless gesture. Craig provides the theoretical understanding that I believe motion capture performers so desperately need.

To this end I think it's vital for students to direct each other in motion capture scenes as well as perform in them. My entire outlook on performance changed dramatically after having gone through the directing process on *Flashback*. You not only understand the technical side of things better, but gain a much greater respect for the men and women that work in those fields. I've been on several sets where actors get frustrated over the time it takes between set ups and preparation for effects shots. They simply have no idea how the process works. As a result, some lash out at the crew and become incredibly difficult to work with. If an actor had experience behind the camera and understood the technical side of the process better this kind of misunderstanding would never occur. It is vital to the success of a motion capture performer that

they understand as much as possible about the technical side of the art form and develop an appreciation/respect for the crew behind the camera. They must understand that they are simply part of a larger process, being shaped ultimately by the director's vision. It is to their benefit and to the benefit to the narrative as a whole to be respectful of the process and do anything they can in aiding its development. Without that you are left with Craig's nightmare of uneducated actors dominating the stage.

One thing Craig was always combating was the public's impression of "puppet theatre." "All puppets are now but low comedians. They imitate the comedians of the larger and fuller blooded stage. They enter only to fall on their back. They drink only to reel, and make love only to raise a laugh" (Craig, Puppets 3). If the public won't take puppets seriously as performers what hope is there to develop the uber marionette to its full potential?   This is why Craig began writing plays specifically designed to use marionettes in key acting roles. These *Dramas for Fools*, conceived as 365 plays (one performed each day of the year) but never fully realized would present the history of humanity in miniature drama. With these plays he wasn't just reshaping our own interpretation of history, but also the interpretation of puppets through time (Lyons 262).

While Craig's puppet theatre vision never came to pass and public opinion never shifted in the marionette's favor in his life time, I find it fascinating how audience's perceptions of digital puppets have shifted dramatically just in the last two decades. It is quite commonplace these days for actors in film to perform alongside a digital puppet on screen. Awards have even been adjusted to accommodate this fact. In 2002 the MTV movie awards added the category of "best digital character," which was awarded to the character of Gollum in *The Lord of the Rings*.

For an award show to recognize the art form is interesting enough, but the fact that there were enough digital puppets appearing in films that year to warrant a competitive award category is nothing short of mind boggling. Craig never completed all 365 plays in his Dramas for Fools concept, but since the early 90's more than 365 films have been made that feature digital puppets. In many ways it's no longer a novelty, but rather a common element in film. I think once again it's a clear indication that motion capture technology has helped bring Craig's original vision to life.

Craig strongly believed that if an actor lets emotional instinct guide their movements, an inconsistent, chaotic performance will be the result. The character's meaning could change drastically depending on what night an audience viewed the performance. This of course will affect the director's overall vision, which for Craig is the greatest sin of all. With regards to the motion capture process, an inconsistent/chaotic performance can be disastrous. A mo-cap performer must be able to repeat actions take after take and, as mentioned before, may have to break down these movements into different parts of the body, which will be recorded at a different time. Being able to repeat movements flawlessly is vital to the whole process (Trappl 62). The movements of the actor as applied to the CG character are what will help inform an audience's understanding of a narrative as a whole.

If something is inconsistent in the character's movement an audience's willing suspension of disbelief may be interrupted. If we as an audience are thinking about a character in technical terms, and not simply seeing him or her as a living breathing character the game is lost. Consistent movement, that can be replicated take after take is vital to the director's vision of the piece and therefore vital to the narrative as a whole.

Similar to Meyerhold and Decroux, Craig believed in an outside in approach to acting, wherein the physical movements of an actor helped dictate their emotional state. By approaching a role from a physical standpoint first, the actions and characterization becomes more controllable and consistent. Craig took this outside in approach to performance one step further, by instructing actors to let their observance of puppets help dictate their movements and behavior toward theatre. 'There is only one actor.. nay one man . . . who has the soul of the Dramatic poet and who has ever served as true and loyal interpreter of the Poet. This is the marionette.' As an inanimate object, subject only to the will of the manipulator, the discipline of the puppet would be the ideal: the silent and obedient actor" (Lyons 263). The outward appearance of a puppet would help inform an actor about a character's particular personality and help inform specific movement choices.

Similar to allowing physical movements to dictate emotional responses, Craig felt the observance of the physical make up of a marionette would help shape the construction of both the character being performed and the behavior of the actor him or herself. This is precisely how the motion capture process works. While a director will certainly sit down with a performer and go over certain psychological aspects of the character, the most important thing they provide an actor is a rendering of what the completed CG model will look like. Film is a visual medium and as a result many directors feel visual stimuli is much more effective for performers to latch onto than any discussion of the character would be. Many actors prefer pictures of their character to surround them on the motion capture stage, so that they are constantly aware of the personality they are portraying. The look of the model will certainly dictate the movements of the performer (Actors Blog). Meyerhold admired how puppets are custom made for particular characters.

They don't *play* Hamlet, but rather *are* Hamlet. Through their observance of the renderings on

the motion capture stage, actors begin to custom tailor their performance to that particular

character, attempting to fit it like a hand fits a glove (Craig, Puppets 7). My performance as the

dinosaur was very much shaped by how I interpreted stills of the computer generated model. In

the picture I saw both a sinister, and childish curiosity quality. These qualities became staples of

the velociraptor's personality. I carried these stills around with me during the duration of the

shoot. In between takes I would study the pictures. Simply looking at him would help me stay

in character and remind me of his true nature. It was like looking into a virtual mirror. His

image was the reflection I wished to convey on screen. The whole process became discovering

what movements and body positions I could perform to best accommodate this.

Actor Jay Baruchel, who played Hiccup in *How to Train Your Dragon*, initially had

trouble understanding character. The script was certainly well written, but getting a grasp on

how the personality should be portrayed became a daunting task for the performer. It was only

when he was presented with a rendering of the CG model that things became clear. "I finally

understood the character. The character is me."

Craig certainly wished for performers to emulate puppets in their performances, but it was never

his intention for actors to copy the hectic bouncing motions of a marionette. What Craig was

interested in was the strength found in a puppet's stillness. He advised actors to find the power

of a neutral expression or neutral position of the body and see how the slightest turn of the head

or gesture of the hand changes the intent. By observing how these simple movements can

change an audience's perception, the actor can then begin to form a sort of physical vocabulary

when it comes to movement on stage. "They [the actors] must create for them-selves a new form

of acting, consisting for the main part of symbolic gesture as seen in a marionette." (Lyons 265)

These symbolic gestures, similar to Decroux's corporeal mime movements would be very rhythmical in nature, almost dance like. This of course doesn't quite work for motion capture purposes. As stated before, most films require movements grounded in realism, as opposed to poetic in nature. The symbolic gesture of Craig's puppet theatre would seem a bit heightened/over the top for the silver screen. I do however think that motion capture performers can learn quite a bit from the concept of finding strength in the stillness. Simple moves of the body, often movements were not aware of, can change an audience's perception drastically.

I have participated in numerous "neutral action" exercises" (an action that is devoid of any meaning beyond the completion of the action itself) and it's amazing how deceptively difficult it can be to perform correctly. Slight turns of the head, positioning of the body, speed at which you complete the task, all of these things can intentionally or unintentionally communicate information to the audience. Actors on the motion capture stage must be fully aware at all times what their bodies are doing/communicating, otherwise a director's vision can be ruined. Thus while Craig's symbolic gestures don't quite apply to the field, its clear that the concept of "strength in the stillness" and an understanding of what the body is communicating to the audience is vital to the success of a motion capture performer.

CONCLUSION

Since performers on stage often have to react to things that are not there, given the technical limitations of theatre, applying theatrical acting theories to a virtual performance in film seemed to be quite a logical step. Given that computer animated backgrounds and characters are commonplace in contemporary films, I believe actors will need to draw upon knowledge of the past when working with technology of the future. I see this paper merely as the beginning of what hopefully will become an on-going dialogue on the development of the motion capture medium. Technology changes rapidly, and with it, numerous challenges arise for both performers and directors. As artists we must be able to meet these challenges head on, with proper training. When I began this paper, I was appalled by how little research I could find on the motion capture process. Papers certainly existed on the technical accomplishments of the field, but there was little material that would be useful to performers. I certainly don't want to diminish the accomplishments of the technical wizards that have brought about this new medium, but unless actors and directors become a part of this dialogue the medium will never reach its full potential.

Ultimately I believe schools should exist that focus primarily on motion capture performance, immersing the students in the specific challenges of the medium. In 2006 The University of Southern California's School of Theatre added classes to its curriculum that focused primarily on blue screen performance. While some could interpret this as the school being on the cutting edge, I think it came several years late. Acting programs should stay in step with the technology to better equip their students for potential job offers. I would love to see the

University of Central Florida implement a motion capture performance class to their acting curriculum. In reality this should be much more extensive than just one class, but hopefully it could grow as the program develops. I received wonderful training during my grad school experience at UCF, but through the process of making this movie I realized that specific challenges that arise on the motion capture set are not covered in a normal acting curriculum. It truly is a medium all its own and we as educators must recognize that fact.

Aspects of Meyerhold and Decroux's philosophies discussed in this paper could provide the basis for an acting technique students would develop, while Craig's thoughts would provide the overall acting theory students would subscribe to. As stated before, this paper is merely the beginnings of a potential acting technique for motion capture performance. What I find personally interesting about these three theorists is that their philosophies seem to build upon each other. Meyerhold's biomechanics espouses mechanical precision and repetition, with a focus on acrobatic movements and pantomime. Decroux's corporeal mime builds on elements of pantomime, but focuses on complete body involvement for communicating stories and environments. Decroux's philosophy is largely based on Craig's uber-marionette concept, which wished to completely transform the nature of performers, and wean actors away from gesture movements. This relationship the philosophies share is partly responsible for why they were chosen for this paper. No one theory on its own prepares performers for work in the motion capture field. Rather, it takes elements of all of these philosophies to compile a more thorough methodology. As stated before, this paper is not an end in itself but merely the beginnings of a dialogue. I may have underestimated the complexity in developing a definitive theory for the motion capture medium. There are so many theories that could be brought to this discussion and

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I hope that many different approaches will be brought to the table in the future. The fact that a definitive answer hasn't been reached is not important. What is crucial is that this dialogue continues and that acting educators become aware of this new medium. It would be a grave disservice for actors in training to not be exposed to this medium and its specific performance challenges. The more exposure and knowledge of the field a student has, the more likely they will be able to produce a gripping/truthful virtual character. It is of course the goal of all performers to produce engaging characters. While training may not always guarantee this, it does provide a framework from which an actor can operate, providing their imagination with a bit of theoretical armor. As performance educators, and practitioners it is our duty to arm the imaginations of future performers with well-established techniques.

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