## CHAPTER IV

## POST MODERN DRAMA OF SCIENCE IN UNITED STATES OF AMERICA : THE TAO AND THE TANDAV OF PHYSICS

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### 4.1 Introduction

The Faustian paradox (of hunger for knowledge on the one hand and the inability to use it wisely on the other hand) culminated in American military action on Japan in 1945. In this unprecedented act, nuclear bomb was used to annihilate one whole city : maiming, killing, dwarfing innocent people. This act has been a turning point for the human race, threatening its very survival. How does American drama respond to this situation?

This study started with the analysis of pre-modern British drama which had grown in strength along with the rise in colonial power. It's interesting to sum up this cultural journey of the West with the United States of America, which, 'during the first two post-war decades ... was the undisputed hegemonic power in the imperialist system'.[2] It is interesting to find out if American theatre gained any special features along with its imperialism? Since drama deals with the destiny

of man, what would be its response when the Destiny of Mankind itself is at stake? Does the liminality of drama help human survival or not?[3] These questions have shaped one's understanding of contemporary American theatre in general and its portrayal of science theme in particular.

Variety of American theatre trends are scrutinized for this purpose. Science plays done in mainstream commercial theatre, regional theatre and the experimental theatre are referred to.

Broadway, (the mainstream commercial theatre) has staged number of science-related problem-plays, notable among them being Brecht's The Life of Galileo which was premiered in 1945 with Charles Laughton in the role of Galileo.[4] Off-Broadway, the receptacle of 'historical avant-garde'[5] has staged Kipphardt's In The Matter of J. Robert Oppenheimer, Dürrenmatt's The Physicists[6]. Some plays of the regional theatre, such as James Scheville's Lovecraft's Follies[7] and Addison's Dream[8] try to locate the complex nature of American science and technology. Groups like Otrabanda, with the assistance of the National Science Foundation have travelled across America with productions like Glass, Stump Removal etc.[9]

4.2 Science Drama of Experimental Avant-Garde

This study however, focuses its attention on the plays of off-off Broadway or the experimental theatre. Experimental theatre has enjoyed greater freedom to experiment with content and form. The science-plays are no exception to this tendency. Eric Bentley had asserted long back that serious drama would exist in nook and crannies of a graveyard called Broadway.[10] One's first hand experience also re-established the feeling that the experimental theatre (like intermediary theatre of India) is a beacon of hope in its ability to highlight significant concerns that American society needs to confront. Both colonized and colonizing societies, need to free themselves from dehumanizing factors. The experimental avant-garde is motivated by the impulse to understand dehumanizing conditions and attempts to overcome these conditions.[11] Richard Schechner, one of the chief spokesmen of this movement explains the experimental spirit of this theatre in the following words :

> The second meaning of avant-garde is to be experimental. The roots of the word 'experimental' mean to 'go beyond the boundaries' - ex/peri : To venture into the unknown; to try out new things; to test hypotheses against experience. Experience is of course a word whose roots are identical to experiment; the two concepts as actions are inextricably connected to each other.[12]

In order to understand both the experience and experiment that post-war off-off Broadway deals with, one needs to understand its role in what Roszak labels as The Makings of A Counter Culture. In the book of this title, Roszak analyses the anguish of post-war American youth in facing technocratic society. By technocracy Roszak means :

> ... that social form in which an industrial society reaches the peak of its organizational integration ... so we arrive at the era of social engineering in which entrepreneurial talent broadens its province to orchestrate the total human context which surrounds the industrial complex. Politics, education, leisure, entertainment, culture as a whole, the unconscious drives, and even, as we shall see, protest against the technocracy itself; all these become the subjects of purely technical manipulation. The effort is to create a new social organism whose health depends upon its capacity to keep the technological heart beating regularly ... the roots of the technocracy reach deep into our cultural past and are ultimately entangled in the scientific world-view of the Western tradition.[13]

Number of theatre trends evolved as a response to (or rebellion against) technocracy. One of them was related to the exploration of non-Western societies and their theatre-work. Grotowski had initiated this intercultural trend by first-hand study of Kathakali at Kalamandalam, Kerala.[14] Other traditional Asian theatre forms too were studied meticulously in order to find out if Western theatre would regain the collective strength of ritual or ritualistic forms.[15] Unlike

the historical avant-garde, the experimental avant-garde hungered to create a sense of community. Richard Schechner describes this phenomenon exhaustively in his seminal article, 'From Ritual to Theatre and Back : The Structure/Process of the Efficacy - Entertainment Dyad',

> Much of the post-war avant-garde is an attempt to overcome fragmentation by approaching performance as a part of rather than apart from the community. Sometimes this community is the community of the artists making the work; this has been the pattern in New York, London, Paris and other Western cities. Sometimes - as in the general uprisings of 1968 - the art is joined to large political movements. Sometimes, as in black and Chicano theatre, and more recently in other 'special interest' theatres, the artists identify with - even help to form - a sense of ethnic, racial or political identity. This community-related avant-garde is not only a phenomenon of the industrialized West, but also of countries that are industrializing or undergoing great changes in social organization ...[16]

Apart from intercultural borrowings and community oriented theatre, the third aspect of the post-war or post-modern theatre is related to the expansion of the field of performance. Theodore Shank analyses it in American Alternative Theatre in these words :

> A visual focus became an alternative to the established theatre's dependence on words as the chief medium of expression. There was a distrust of words because of the end to which they were used by

> politicians and advertising. It was also recognized that some experiential concepts cannot be expressed by words, and it was thought that society, having relied upon words, had tended to cut itself off from its experience. Furthermore, the alternative culture denigrated nationalism which in part is perpetuated by national languages. Painters and sculptors who were beginning to create theatre productions were naturally inclined toward visual means, and other theatre artists experimented with non-verbal sounds, with placing focus upon the performer's body, and with a variety of other non-verbal means.[17]

The philosophical implications of these semiological trends are still being deciphered by Western scholars and theatre practitioners. Richard Palmer locates the source of this shifting world-view by pointing out in his essay 'Post-Modern Hermeneutics Of Performance' :

> Literalism is the death-in life mode of thought with which modernity has waged war on the visionary imagination. ... Is it, perhaps that man is trying to reconnect with the deeper, less 'rational' powers and realities of the cosmos?[18]

Richard Schechner locates the reasons for change in consciousness to the following factors in the essay 'End of Humanism' : i) Post-war awareness of 'human capacity for extinguishing our own species and for totally ruining the biosphere', ii) The cumulative impact of sociobiology (which 'sees the sources and limits of human action in genetic structures'),computer languages (when I say that power is

shifting from the visible to the invisible, from politics to religion, I don't mean necessarily the religions now familiar to people. I mean the creation of "mysteries" or sanctums access to which is limited to a special class of people who know the languages of the "truth speakers". These "speakers" may be computers or other artificial beings, and their oracles will slowly organize themselves into a priestly caste') and multinational corporations on the texture of experience. These systems, according to Schechner, reject ordinary happenings along a linear plane, they view experience as 'what the Hindus call maya and lila - illusion and play - a construction of consciousness'.[19]

Post-modern avant garde theatre tries to capture the newness of a world whose inner structure has undergone transformation. A brief account of three important productions will help us understand the scope and limitations of experimental avant-garde. All the three plays chosen, deal with the science theme - an issue of central importance in determining man's perception of time, space, matter, self. All the three have been produced in proscenium theatre. Richard Foreman's Particle Theory was produced in 1973, Robert Wilson and Philip Glass produced Einstein On The Beach in 1976 and Mabou Mines produced Dead End Kids : A History of Nuclear Power in 1981. The Bread And Puppet Theatre presented End of The World Pageant as part of anti-Nuke demonstration in 1982.[20] But for want of

exhaustive visual material, this production cannot be discussed. Proper discussion of the other three productions is also not possible without first-hand experience of the work, as they heavily depend on visuals. However, brief summary of the works may help us understand the general direction of avant-garde movement.

Foreman is considered one of the most formidable figures of post-modern American theatre. Since he founded the Ontological-Hysteric Theatre in 1968, he has written thirty-nine plays and produced, designed and directed twenty-one of them. Only twelve plays were presented under the title Ontological-Hysteric Theatre. His aim was to create a theatre that was true to his mental experience, that is 'the world as being pieces of things-awkwardly present for a moment and then either represented by consciousness or dropped in favour of some other momentary presentation'.[21]

In an interview published in Drama Review Foreman describes his method of writing the script of a play, in these words :

> I take naps during the day. To 'clear' my mind, so that I can 'begin again' - start a new day, as it were, whose writing will come from a new place. It's as if my writing were trying to define some 'unseeable' object whose outline can only be traced through a one-step-removed method akin to the physicist's method of

> firing electrons at a particle and catching the electron's patterns of deflection on a photographic plate. So I 'fire' bursts of writing at an invisible particle (a certain state of being, a certain dreamed of, intuited, level of consciousness or attention) and the writing, some of it, hits the page ...[22]

Unlike the community-oriented trend of much of American avant garde, Foreman shows total disregard to external, social factors. Instead he represents the post-modern trend of seeing the self as the other. As Schechner puts it :

> To see the 'I' at the centre of the world is a modern feeling. For the self to see itself and become involved with that reflection or doubling as if it were another is a post-modern experience. To become conscious of this doubling - to posit a third self aware of the mutuality of the other two selves, this geometrically progressive 'reflexivity' is postmodern.[23]

It is interesting to note Foreman's constant use of metaphors from quantum mechanics. Quantum mechanics has revolutionized man's perception of matter and its hidden structure. Foreman responds to some of the concepts of modern physics and like Jarry tries to relate it to ontological concerns. For example the particle physicists' observation that '... the structure of a particle at any time is determined by all of its interactions. Conversely, the character and degree of interaction are determined by the structure of the particle. That is the dialectic essence of matter and the field,

the properties proper of particles and their interactions, and the inseparable generality of the inseverable community of the microparticle and of the entire universe',[24] is applied to ontology, which is 'the science of being or reality; the branch of knowledge that investigates the nature, essential properties, and relations of being'.[25]

Not the same as in note p.206

The following quote from Dorris Falk's account of the play from her article 'Physics And The Theatre : Richard Foreman's Particle Theory', will enables us to see the peculiar way in which the play is concretized :

> There are five principal performers in the play. To these are added a "Crew" (Chorus), whose members appear on stage at various times throughout the performance to rearrange the setting, to add or delete props, or to interact with some of the principal performers in various activities. One or more members of the crew is usually present on stage throughout the play. Foreman insists that all aspects of his theatre pieces, including their physical underpinnings, should be visible to an audience at all times. ... The first few sequences of Particle Theory give some indication of its overall structure. The play begins with Max seated next to a table, feet up, a pad on his lap, head tilted back. His arms hang down and we notice a false third arm holding a pencil. After a long silence, he says: "I'm a bad thinker now." Another pause follows, and then Max continues: "If I had a more stringent way of thinking my hand would move by itself, huh." Max then engages in a series of activities that continues throughout the play: the crew place his hands and feet into four bowls, an occurrence that does not disturb the tiltback angle of the chair in which he is seated. A drop is now pulled across this back area to hide the "room" in

> which Max is seated. In the next sequence we hear birds singing. Ben enters carrying a sack with a flower sticking out of the top and tin cans inside. Rhoda appears in a ballet dress and kicks the sack causing the tin cans to rattle loudly. She goes off stage, shutting the door behind her; she then opens the door, reenters, and repeats this same activity about six times.[26]

Richard Foreman seems to have deeply internalized the concept of particle physics, before concretizing it as an insight into the elusive drama of human consciousness, that too in a state of somnambulistic solitude. Foreman, like Jarry before him, structures his plays on scientific precepts that have changed the outlook of this century. Plays of this kind strongly fulfill Alexis de Tocqueville's prophecy in Democracy in America :

'I am persuaded that in the end democracy diverts the imagination from all that is external to man and fixes it on man alone ... The destinies of mankind, man himself taken aloof from his country, and his age, and standing in the presence of Nature and of God, with his passions, his doubts, his rare properties and inconceivable wretchedness, will become the chief, if not the sole theme of poetry.'[27] It is impossible to comment on the quality of this theatre-experience without seeing it, but it does seem important to include it in the inventory of avant garde experiments with a bearing on the science theme.

As a contrast, Robert Wilson and Philip Glass' Einstein On The Beach[28] is an epic extravaganza, involving nearly a million dollars for its production, as Ross Wetzsteon underlines in his review titled 'There's No Business Like The Avant-Garde Business'.[29] According to John Rockwell, Mr. Wilson acknowledges the fact that he is one of the few experimental directors whose work requires lot of space, money and technical equipment. And he finds greater European support for his work than support in United States. Rockwell feels that Wilson's move towards opera has partly to do with the natural evolution of his interest toward aural collage and music. But it also reflects the fact that only opera houses are really equipped to mount the massive theatrical spectacles that are most truly characteristic of his work.[30] (Interestingly, he produced Satyagraha - an opera on Gandhi's non-violent political struggle before working on Einstein On The Beach.)

The focal image of this opera is that of Einstein. According to Wilson :

> I always thought the opera was about Einstein ... Everyone on stage was dressed as Einstein. He seemed a sort of Everyman. He was easy to identify by his clothes. He represented himself that way. He always said, I'm not extraordinary. I'm just an ordinary man.[31]

Philip Glass who composed music for this play, gives his point-of-view regarding Einstein On The Beach :

> I was interested in Einstein because for one thing he was a musician. I saw right away that his characterization could be integrated into a music score quite easily through the fact that he himself was a musician. The most important musical material appears in the Knee plays and features the violin. Dramatically speaking, the violinist dressed as Einstein (as are the performers on stage) appears as a soloist as well as a character in the opera. His playing position, midway between the orchestra and the stage performers, offers a clue to his role. He is seen then, perhaps as Einstein himself, or simply as a witness to the stage events; but, in any case, as a musical touchstone to the work as a whole ... Einstein was also a scientist involved in all the imagery of modern science that we are accustomed to. My music is something that I subjectively associate to modern machinery, engines, motors and that kind of thing. The idea of doing a piece that combined all these aspects was very appealing to me, it came close enough to the theme of science that interested me ...[32]

This performance piece consists of brilliant images and music that evoke Einstein's life and effects his work had on the world. But as the following quote from F. Joseph Spieler suggests, the images are evocative but ambiguous.

> The title Einstein on the Beach has no literal meaning. Images of Albert Einstein fill the work, but the closest we come to being "on the beach" is a conch shell that appears on stage right in several scenes. At one point an actress lifts it to her ear; it is up to us to guess what she may have heard. Some critics thought the title

referred to a civilization on the brink (as in Nevil Shute's On The Beach), or to Einstein's love for sailing. There is no plot or action in the sense of traditional theater or opera. Instead, we are given a number of visual ideas or, more accurately, notions that are taken, often obscurely, from Einstein's life and the effects his work had on the world. Some of the notions are obvious; others assume a more than passing knowledge of the scientist. In any event, none is explained, and you just have to try and catch them as they go by. These references include Einstein's love for fiddling on the violin, for steam engines (a steam locomotive and a train are among the principal sets in the first two acts), his theoretical contribution to the atomic bomb to space travel, and his exercise of pure reason. All these lead to the last scene, in which flashing lights, violent dancing, and loud, churning music hint at some sort of cosmic cataclysm set inside a space machine. Even this simple list, however, implies a specificity to the opera which it lacks. For instance, the longest visual reference in Einstein to his theoretical work is in act four: a high rectangular building on an empty plain, seen from its narrow front, but slightly angled to give an idea of its depth. Near the top of the building is a window and through it we see a man, his back to us. His right arm describes ceaseless writing motions on an imaginary surface in front of him. A crowd gathers slowly at the front of the building and spends its time looking up at the window. The first to arrive is a child on a skateboard; as the crowd wanders off, he is the last to leave. The scene ends as it begins, a building set on a lonely plain; through a high window we see a man, his right arm in motion. We assume the man is Einstein. Is the building Science? Is he, in his furious scribbling, working out formulas that will save - or destroy - mankind? Why does the building look more like a prison than a scientific

> institute? Are scientists prisoners? Whose? The silent people who gather below - are they prisoners of Science? Are they kept away from Science? (The building is massive, it has no door that we can see, the scientist inside is too high to reach.) One wants to know more, But feels embarrased to ask.[33]

Both, Particle Physics and Einstein On The Beach indicate the deep sense of commitment that experimental avant garde has felt towards the science theme. Although science-drama hasn't gained the status of special interest theatre, yet these sample science-plays indicate the complexity and sense of purpose of experimental avant garde.

Mabou Mine's Dead End Kids : A History Of Nuclear Power[34] shows the experimental avant-garde at its best. In this performance-piece Mabou Mines has achieved an unusually gripping blend of content and form. As the title indicates, the performance piece presents the history of nuclear science from its nascent, pre-modern stage (alchemy and magic) to its modern evolution as an established method of generating energy. The Dead End Kids of the title refer to scientists and generals who have used nuclear energy for destructive purpose.

The history of science is presented through 'multiplex' method which Richard Schechner has called a post-modern framing device.[35] It seems symptomatic of or a result of the multiple channels of information that the mass-media man recieves very often.

Detailed discussion of the play will indicate the novel way in which the multiplex method operates in Dead End Kids. The following quote from page 4 and 5 of this unpublished play will help us identify the various images of science that are evoked by J. Akalitis. These images are part of the Westerner's consciousness. As David Sterritt points out, 'The playing area is littered with technological icons.[36]

Image 1 : Before the audience enters, they visit the ATOMS FOR PEACE science fair, a replica of a 1950's high school science fair exhibition about the history and peaceful uses of nuclear power. Several of the exhibits are of the "working" kind, for example a model of Enrico Fermi's first nuclear reactor at the University of Chicago which one can make "critical" by pulling out the "control rod". This is mounted in the lobby. Just inside the house, there is a fallout shelter exhibition with an accompanying recording of a female voice gently explaining fallout shelter procedures.

Image 2 : House lights and dim stage light are up. The Head Alchemist, dressed in a 16th century costume roams around the stage faking flash pictures of the set and actors.

Image 3 : An older woman sits on a little school chair facing a blackboard which has "Do Not Erase" written on it.

An intense man sits at the round table pondering a book. Both man and woman wear white lab coats with I.D. badges. They make "mudras" which are a continual gestural motif of the play. (Some are derived from old alchemical prints, like pointing stiffly to the head with index finger, others are common "thinking" gestures, such as scratching the head.) The man and woman occasionally speak certain words in a loud flat tone: AIR, FIRE, WATER, EARTH, MARS, JUPITER, VENUS, MERCURY, LUNA.

Image 4 : DOWNSTAGE LEFT two alchemists wearing hard hats and white coats over their alchemy costumes build a house out of the text books. The cub scout and a young pre-teenager in lab coat help them.

Image 5 : At curtain time, house lights dim. The Head Alchemist takes a picture of the center pile of books and alchemical flask, moves the flask, stands on book pile and raises his arms in a noble heavenward gesture. The gold rays light. Grand organ music. The Head Alchemist continues in a sort of solo dance.

Image 6 : The lecturer enters from DOWN RIGHT in lab coat carrying a little house built from a childrens' Lego set. He raises his arm holding the house in front of the UP RIGHT panel and the fluorescent goes on. He commences his lecture (improvised), not really audible to anyone but the woman sitting by the blackboard. As he lectures he draws a diagram on the blackboard.

Image 7 : Soon after the magician enters and goes into his magic act, cane into a scarf, shredded newspaper into a whole newspaper. Immediately after the magician's entrance, the Alchemy announcer, sauve, vaguely modeled after T.V.'s "That's Incredible!" enters and speaks into the microphone DOWNRIGHT.

Image 8 : ANNOUNCER: And that's incredible! (Repeated throughout his speech, often in response to the magic.) We are now going to give, for what we believe to be the very first time, an accurate description of what an alchemist actually does in his mysterious and colourful laboratory. Do not forget that alchemy's ultimate aim is the "transmutation" of the alchemist himself, and that his operations are only steps in his slow progress towards "spiritual liberation". Our alchemist, in the first place, spends many years deciphering old texts which to the reader, deprived of any "Ariadne's thread" are like a labyrinth where everything has been done deliberately and systematically to throw the uninitiated into a state of inextricable mental confusion.

Image 9 : Madame Curie enters STAGE LEFT. Crosses to her lab and goes to work on an experiment which lasts through this section. She is followed by a woman dressed in a 1950's baseball jacket and circle skirt, bobbysocks,

> who roams the set observing the Head Alchemist who is still gesturing on his pile of books, the Lecturer, the Magician and the Announcer continue. (1.4-5)

In order to understand, both, the method and the content of the play, each image can be viewed separately.

Image 1 : The Atoms For Peace Science Fair. This is a recognizable symbol, especially for the literate audience. The audience goes through the motions of participants of this Fair. Akalitis painstakingly points out the myth of peaceful uses of nuclear energy that the educational system has emphasized, thereby misleading people about the awesome, destructive potential of nuclear energy.

Image 2 : The Head Alchemist in 16th century costume, but acting like a film maker, faking flash pictures of the set and actors. This takes the audience back to the pre-modern origin of modern science. It is well-established that with alchemy man's knowledge of transformation of matter into new combinations gained momentum. This act culminated in the nuclear scientist's discovery of the ninety-third element, plutonium.

Image 3 : The elderly woman on a little school chair and an intense man pondering a book: both evoke the gamut of activities the alchemists and modern scientists participated in, fusing both the historical epochs. The alchemical ritual of

certain specific gestures and chants, fuses with the modern educational situation, in which science is taught in secular class-rooms.

Image 4 : Two alchemists build a house out of the textbooks, helped by a cub scout and a young pre-teenager. The symbols of modern educational process are built up systematically. The edifice of knowledge (books) is constructed by young, receptive minds with the help of seasoned alchemists.

Image 5 : The Head Alchemist takes pictures of pile of books and alchemical flask. Continues in a sort of solo dance. Image 6 : The lecturer carrying a Lego set house, lectures; audible only to the woman sitting by the blackboard, making knowledge an exclusive, eclectic activity. Image 7 : A magician enters performing magical tricks.

Image 8 : The Alchemy Announcer enters, commenting on alchemy, in a style that has become popular on television, a style in which excitement is whipped up and held by dramatizing reality. He points out that the aim of alchemy is 'the transmutation of the alchemist himself, and that his operations are only steps in his slow progress towards, 'spiritual liberation'. A point-of-view that J. Akalitis evokes with a sardonic touch. Image 9 : A woman dressed in a baseball jacket and circle skirt observes the scene. She perhaps represents the general public. Images 5,6,7 and 8 continue simultaneously.

They create a tableaux, one image contradicting or highlighting other images.

We notice that powerful images from the history of science are put together connecting the work of modern nuclear scientists such as Madam Curie to the ritualistic chants and mudras of early alchemists. As Fuch puts it, Akalitis' set is backed by cabalistic emblems from Renaissance alchemy and littered with children's books.[37] The early alchemists and their secret writing starts off the tradition of written formulae, published information which is transmitted from one generation to another generation. The pre-modern and modern is re-worked by presenting a modern lecturer and a pre-modern magician performing tricks.

These images are presented simultaneously, creating a dream-like, surreal choreography in which dream-time binds the images together, allowing the audience to go back and forth in the various stages of scientific history and activity. However, one should underline the fact that the dream-like state refers to the collective cultural life, in which myth, legend, fact appear in a kaleidoscope. One of the critics rightly said that Dead End Kids 'offers a history of nuclear science's subconscious'.[38]

With hypnotic quality the images are amplified. An announcer comments on the elaborate work of the alchemist,

evoking associations of alchemy and nuclear science. For example, on page 6, commenting on the alchemist's experiment, the announcer says :

> ANNOUNCER : We do not know. Our alchemist speaks of "cosmic rays", terrestial magnetism, "fatigue" in matter, "sacred patience", the slow condensation of the "universal spirit". But behind this "para-religious" language there is surely something hidden. After some years the first phase is completed. Our alchemist adds an oxidizing agent and then continues the operation of dissolving and reheating for months and years without respite, always waiting for a sign. When he at last receives that sign, our alchemist removes his mixture from the crucible and allows it to "ripen" protected from the air and the damp until the first days of Spring. When he resumes his operations, these will be directed towards what is called in the old texts "the preparation of darkness". (1.6)

Through this contact with the invisible world - the world of darkness - ironically the spiritual transformation of the alchemist himself is anticipated :

> Our alchemist himself undergoes a transformation which would seem to be a promise or foretaste of what awaits humanity after attaining the very limits of its knowledge of the earth and its elements; its fusion with a Supreme Being, its concentration on a fixed spiritual goal and its junction with other centers of intelligence across the cosmic spaces. (1.8)

After this grand statement, a string of images are presented animating the conceptual evolution of nuclear science from alchemy to the work of Einstein and Madam Curie.

As the following quote will indicate, the detailed mapping out of radium is followed by a rapid inventory of important names in the history of Physics.

> BLACKOUT
>
> Bluish fluorescent lights glow from bottles in Madame Curie's lab where she has been working since her entrance. She crosses in dim blue light as the scientists and alchemists quietly pick up books and then sit in the little chairs rubbing their fingers as Madame Curie does. (The result of radium burns.)
>
> MADAME CURIE : Prodigious radium! It appeared to be a dull white powder which might easily be mistaken for common kitchen salt. But its properties better and better known, seemed stupefying. Its radiation passed all expectation in intensity; it proved to be two million

times stronger than that of uranium. Only a thick screen of lead could stop the insidious rays in their invisible flight. Radium had its shadow its ghost; it spontaneously produced a singular gaseous substance, the emanation of radium, which was also active and which destroyed itself clearly even when enclosed in a glass tube according to rigorous laws.

Another defiance of the theories which seemed the immovable basis of physics was that radium spontaneously gave off heat. In one hour it produced a quantity of heat capable of melting its own weight of ice.

What could it not do? It made an impression on photographic plates through black paper; it made the atmosphere a conductor of electricity and thus discharged electroscopes at a distance; it colored glass receivers which had the honor of containing it with mauve and violet, it corroded and, little by little, reduced to powder the paper or the cottonwool in which it was wrapped.

We have already seen that it was luminous. The light emitted could be strong enough to read by.

But radium was not content with this marvelous gift; it also gave phosphorescence to a large number of bodies incapable of emitting light by their own means.

> And, finally, the radiation of radium was "contagious", contagious like a persistent scent or like a disease. It was impossible for an object, a plant, an animal or a person to be left near to a tube of radium without immediately acquiring a notable "activity" which a sensitive apparatus could detect. This contagion, which interfered with the results of precise experiments, was a daily enemy to Pierre and Marie Curie. (1.11-12)

From history of physics, the focus shifts to legend, J. Akalitis chooses Gretchen, Faust and Mephistophilis of Goethe's imagination.

> Berlioz aria, romantic and gentle. Madame Curie projects slides on the blackboard which has been moved DOWN STAGE RIGHT. Slides of Nicolas Flamel, Paracelsus, Robert Flood, Newton, early physicists, portraits, working in laboratories, posing in groups, slides of herself, her husband, Einstein, Oppenheimer, The Fermi Group in Chicago. The last slide is of the plaque from the University of Chicago commemorating the first man made chain reaction.
>
> Madame Curie puts down the slide projector and crosses STAGE RIGHT to the microphone, leafing through a book. The young woman is dimly lit in the STAGE RIGHT alcove dressed as Gretchen in Faust. She "signs" the text of the scene.

> Madame Curie offers a translation and commentary which is improvised. She speaks English with a Polish accent. Her comments are humourous, simple, feminine. She introduces the scene with a short summary of what has gone before, the translator's name and line number in the text. Faust is seated on a grand velvet draped throne-like chair under the gold rays. The design is modeled after Durere's painting Melonchalia.Spilling from the folds of the velvet are alchemical flasks, old books, bellows, stuffed lizard, stuffed birds, a skull, and various other peraphernalia that is associated with philosophy and alchemy. When Mephistopheles appears, he does so as a six headed figure appearing out of the folds of the velvet. (1.13-14)

Like earlier 'intercultural' borrowings' such as the term mudra from Indian semiology, referring to a well-defined gesture, in the working of Mephistophilis too the Indian impact is noticeable.[39] Like Ravana of the classical Indian epic Ramayana, Mephistophilis is a multi-headed symbol of evil. An important section of Goethe's Faust is recited in German and English simultaneously. Mephistophilis establishes himself as 'a part of darkness' which Akalitis had earlier referred to while mentioning the alchemist's intention of 'preparing darkness'.

MEPHISTO :

The modest truth I speak to you.
While man, this tiny world of fools, is droll
Enough to think himself a whole,
I am part of the part that once was everything,
Part of the darkness which gave birth to light, (1.161)

After this exchange, Faustus and Mephistophilis debate on the possibility of signing a contract for unravelling the dark forces of Nature.

FAUST :

You need not fear that someday I retract.
That all my striving I unloose
Is the whole purpose of the pact.
Oh, I was puffed up all too boldly,
At your rank only is my place.
The lofty spirit spurned me coldly,
And nature hides from me her face. (1.187)

Very decisively, Akalitis shows the Faustian ambition of contemporary civilization by strong telescoping of the pre-modern and modern, of myth and reality.

At line 1415, Madame Curie translates : "Then perhaps you and I can make a deal."
BLACKOUT on Fausthaus

She continues the story, summarizing and commenting to the point after Mephestopheles returns and Faust agrees to sell his soul to the Devil.

Light on a conference table STAGE LEFT of the Fausthaus. Faust is seated at the table, surrounded by the Mephistopheles who are in turn a businessman, scientist, army general, marine colonel, academician, and minister. They are each offering him a ballpoint pen.

MEPHOSTO :

Blut ist ein ganz besondrer Saft.

MADAME CURIE :

Blood is a very special juice.

Faust grabs a pen, looks out, enormous chord of Berloiz music. He signs six times. Various devils congratulate each other. The actor who played the alchemist, now playing the businessman, snaps a photo of Faust. (1.15)

By surrounding Faustus by Mephistophilises who are - a businessman, a scientist, an army general, a marine colonel, an academician, and a minister, Akalitis in one shot indicates her view that her total culture feeds on (feasts on!) Faustian obsession with power and that nuclear science is a cumulative result of centuries of ambitious probes into Nature's mysteries for greater and greater power.[40]

In a twist, reminiscent of Samuel Beckett in Waiting For Godot[41] from sublime to ludicrous, this sequence is followed by gossip about the degenerate nature of Faustus.

The image of evil and nuclear science is worked out with greater emphasis subsequently. As noted earlier each focal image is amplified in great historical detail, so that we not only get a feel of history of nuclear science, we begin to understand J. Akalitis' anti-nuclear, anti-patriarchal[42] stand quite clearly. As the following quote suggests :

> Patriotic martial music. Slides of University of Chicago plaque, members of the Manhattan Project, a group in front of the atomic bomb, Roosevelt, General Leslie Groves, Truman, Churchill and Stalin.
>
> MALE VOICE : (In dark; solemn, pretentious)
>
> 18 July 1945
>
> Top Secret
>
> Memorandum for the Secretary of War
>
> Subject : The test.
>
> Sound of mikes being tapped in dark.
>
> MALE VOICE : Is this mike on?
>
> Light on conference table. General Groves and General Farrell seated behind old fashioned table mikes. Young woman as restrained but sexy army stenographer.

Seated around the UPSTAGE round table are the Mephistopheles, smoking cigars and cigarettes. Throughout the following they respond to the sexual double entendres in the general's report. They improvise comments. In the beginning they are restrained and giggly. As the scene progresses they become more rauctous.

GENERAL GROVES :

At 1530, 16 July 1945 in a remote section of the Almorgordo Air Base, New Mexico, the first fullscale test was made of the implosion type atomic fission bomb. For the first time in history there was a nuclear explosion. And what an explosion! It resulted from the atomic fission of about 13½ pounds of plutonium which was compressed by the detonation of a surrounding sphere of some 5000 pounds of high explosive. (1.16)

The image of Mephistophilis and Faustus, which had been woven through Madame Curie, meanders through the army generals, culminating in Oppenheimer.

Dr. Oppenheimer, on whom had rested a very heavy burden grew tenser as the last seconds ticked off. He scarcely breathed. He held on to a post to steady himself. For the last few seconds he stared directly ahead and when the announcer shouted, "Now!" and there came this tremendous burst of light followed shortly thereafter

> by the deep growling roar of the explosion, his face relaxed into an expression of tremendous relief. Several of the observers were knocked flat by the blast. The tension in the room let up and all started congratulating each other. Everyone sensed, "This is it." Atomic fission could no longer be hidden in the closets of the theoretical physicists' dreams. It was almost full grown at birth. It was a great new force to be used for good or evil. As to the present war, there was the feeling that no matter what else might happen, we now had the means to insure its speedy conclusion and save thousands of American lives. As to the future, there had been brought into being something big something new that would prove immeasurably more important than the discovery of electricity. The effects could well be called unprecedented, magnificent, beautiful, stupendous and terrifying. It was that beauty the great poets dream about but describe most poorly and inadequately. The strong, sustained awesome roar warned of doomsday and made us feel that we puny things were blasphemous to dare tamper with the forces heretofore reserved to the Almighty. (1.18-19)

Man had overreached himself. Akalitis, in her indefatigable conviction about the need for a radical transformation of her society, goes on to link this scientific event with the

utterly tragic use of this knowledge on the Japanese people and its utterly dehumanizing impact on the American children who are receipients of an educational system which fragments the lethal knowledge of nuclear science in such a way that between its science and its humane application there seems to be no contact whatsoever.

The following quote from page 24a and 25 will indicate the way conceptual teaching of nuclear science is juxtaposed with its effect on human beings :

LECTURER :

Now, look, there is only one way of going beyond the Aleph, and that is to raise it to a power of Aleph. (He takes a Aleph symbol out of his waist and attaches it to the line between the Magician's table and blackboard with a close pin. He attaches a few more as he mentions the Alephs.)

If we call the first Aleph, Nil, the second is Aleph one, the third two etc. and so forth ad infinitum. (He goes on talking walking behind the blackboard. Appears over the top of the board.) Look, Aleph two corresponds to a number which would be greater than anything anyone could conceive of; in fact, there are not enough objects in the entire universe which if counted would amount to Aleph two.

He cuts the string with an big pair of scissors, and,

The two turn their chairs around and look around. They appear stupid and confused. They are "Nerds". As the voice talks the lecturer speaks the sage text to the audience.

VOICE :

The likelihood of reactor accidents is smaller than that of many other accidents having similar consequences. While there are some in the public sector who will feel that the likelihood of occurrence of nuclear power plant accidents should be made essentially zero, neither nuclear accidents nor non-nuclear accidents of any kind can have zero probability. We do not now, and never have, lived in a riskfree world. Nuclear accident risks are relatively low compared to other man-made and natural risks. All other accidents, including fires, explosions, toxic chemical releases, dam failures, earthquakes, hurricanes and torandoes, that have been examined in this study are more likely to occur and have consequences comparable to or greater than nuclear accidents.

On natural risks, the lecturer yells "Lights, please!" BLACKOUT. He swings backboard up. There is a projector on a table behind the blackboard. Checkered tablecloth, two men in lab coats and caps and a cub scout are seated eating pizza, lit by a candle in a Chianti bottle.

Slides of paintings and photographs of various disaters mentioned are projected on Magician's scarf and spill onto the Nerds faces. The Nerds hop about in alarm. At end of text, lecturer yells for lights.
LIGHTS. (1.24a-25)

A woman, purportly a teacher - begins to give a demonstration of the hydrogen bomb to her student, the cub scout, in a mechanical fashion.

WOMAN : (Continuing after first paragraph of the above.)
The primary system, that's what the scientists call it, but we know it's just a little bomb. Our cub scout here is going to take the little detonators and wire them one by one into the bomb. (To cub scout) But be careful, it would be such a drag to have even a little explosion. OK. (She starts to speak really fast.) I'll just lay out a picture of what happens here. When the tri-nitro benzene explodes, it will drive the beryllium neutron reflector and heavy uranium toward the fissile core and that core will be squeezed so tight that it will become super critical. At the same time the d-t neutron generator is going to bombard the core and start a chain reaction in the fast fissioning plutonium 239. Right at this moment we have to get the primary system going, that is, the fusion fuel going before it blasts everything away. And all we have is a millioneth of a second. (1.30-31)

In the same 'aloof' fashion the following information is processed by the teacher and the student :

Five slides of the burned backs of Hiroshima victims are projected on the blackboard.
The lecturer is standing over a man lying on the table CENTER STAGE. A group in lab coats is leaning over the STAGE RIGHT end of the table. All are lit by beam from the slide projector. An operator on a little chair STAGE LEFT clicks it on and off. As the group is caught in a beam they shift positions and assume a mudra. They chew gum and sporadically look at their watches. The lecturer talks rapidly, pointing to, holding up the various parts of the body on the table. The man on the table chews gum and glances at his watch from time to time.

LECTURER :

As I was saying, the primary consequences of a short term exposure in a heavily exposed mammal, that is, in this case a human is what we are considering here. Look, short term exposure or subjectation to a massive dose of radioactivity over a brief or short period of time. Look, this makes him a S.I., Survival Impossible, or S.I, Survival Improbable, as opposed to a S.H.U., Survival Highly Unlikely. One of the reasons that he is a S.I. is that he has sustained, as I was saying, a W.B., whole body dose, as opposed to a P.B., partial body dose.

(1.32)

This mechanical, purely technical reference to a lethal activity, generates laughter followed by disgust.

The presentation of a nightclub comedian presenting a performance piece titled - 'The Effects On Livestock In Event Of Nuclear War' with a dead chicken, enhances the feeling of disgust with man's capacity to reduce himself to a sub-human stage.

But what follows is even sadder in its utter insidious power to prepare fresh forces of evil.

> Music. Under the music and audience applause there is a clicking noise. It seems to be coming from the geiger counter which has replaced the alchemical gold rock in the center alcove. The ladder is next to the rock. The lights glow from the geiger counter. One after another areas on the stage glow dimly, the geiger counter, the table, bookhouse, empty children's chairs, blue radium in bottles from Madame Curie's lab.
> When the empty chairs are lit, the sound of two girls obviously reading from a book, making mistakes, mispronouncing words is heard.

GIRLS :

> Atomic Bomb : A bomb whose energy comes from the fission of heavy elements like plutonium or uranium.

Blast Wave : A pulse of air pressure higher than an ordinary sound.

Critical : Capable of sustaining a chain reaction.

Curie : The basic unit measuring the intensity of radioactivity. It was named for Marie and Pierre Curie, who discovered radium in 1898.

Fireball : The luminous ball of hot gases that forms a few millionths of a second after a nuclear explosion.

Gamma Rays : High energy electromagnetic radiation of short wave length that is very penetrating and fatal to the human body in sufficient doses. Gamma rays always accompany fission.

Hydrogen bomb : A nuclear weapon that derives its energy largely from fusion.

Pile : A term used for one kind of moderated chain reacting assembly. The name came from Fermi's experiments in building a reactor by piling up graphite blocks and natural uranium.

After the text starts, the young woman dressed in her First Act 1950's outfit enters from the brightly lit off stage room and crosses to the geiger counter which clicks faster and louder the closer she gets to it. She runs off. The man with the camera enters from STAGE RIGHT, approaches the geiger counter and takes a

picture of it. On the flash, all the stage work lights and house lights come on.

The End

AS the audience leaves the fall out shelter tape is played. (1.46-47)

Dead End Kids is a milestone in avant-garde experimental theatre. Merle Ginsberg captures this when he says in his review; 'Dead End Kids is everything you want from theatre that you never expected to get. It's a sophisticated, imagistic work that effects mostly by force of its emotional content. Though it is highly intellectual, it's never pompous; it is radically political and very funny. Now that's incredible'.[43]

Akalitis is vociferous about the political intention of the play. In an interview given to David Sterrit of The Christian Science Monitor, J. Akalitis states this view very clearly :

Question : Do you consider "Dead End Kids" a political play?

Answer : Absolutely. In rehearsal, we discussed what effect we wanted to have on the audience and what the effect would probably be. We discussed what political theatre is and whether it's really possible to attain it.

And we wondered whether our audience would end up being the same old avant-garde that eats everything up and intellectualizes it, and that's all. We wondered whether we could reach a middle-class audience and possibly transform them. We're very interested in performing our work for a broad audience - not just our friends and fans.

Question : Can theatre shake people up like that?

Answer : It has, in our history. One of the great things about theatre is that it's live. It's may be the only live thing left. Television makes you passive, and film is wonderful, but it's still a product.

Theatre has enormous power because it's immediate - even as a propoganda tool, to say it bluntly. In the past, theatre has shaken people up, destroyed their security, and caused them to consider enormous moral questions. That's what the Greek plays are all about - the unspeakable, the unnameable. That's what we wanted to do : to talk about the unthinkable. And also to give people information.[44]

Akalitis wrote this play after two year's preparatory reading and research. Attending the 1980 Theatre Communications Group's National Conference - 'Toward Expanding Horizons And

Exploring Our Art' - had deep impact on Akalitis. The aim of this Conference is well-brought out in Peter Zeisler's (the Director of this Conference) introduction to the Conference proceedings :

> The complexity of our society and the variety of forms by which we now receive information make it almost impossible for artists to be aware of major discoveries and visions of such thinkers as social and natural scientists. This conference will help us make new connections and gain insights into the forces shaping our society, while at the same time affording us the opportunity to share ideas about the craft and visions that go into our art ... American Theatre is looking for ways to identify and search for truth - for the essence - in a increasingly complex society. And I suggest that we are also beginning to grope toward redefining our concept of theatre and how it can function.[45]

## 4.3 Interculturalism in Science-drama

Long ago, in the 50s the British writer C.P. Snow had lamented the fact that the intellectual life of the Western society was split into two polar cultures - the scientific culture and the literary culture, thereby creating a deep schism, separating the artist from the true nature of modern society.[46] J. Robert Oppenheimer too had, somewhat cynically pointed out in The Open Mind that the artist is no more in society than the scientist is, thereby emphasizing the isolation of both from mainstream society. He recognized the great need to bring both in the hub of social reality.[47] Plays like

Dead End Kids (and for that matter other plays on the science theme) achieve this act of socialization or communitas. (From the liminal zone of science and art, they bring the two together as integral part of one culture.) Plays like these, bridge a crucial 'intercultural bridge' that of scientific knowledge and its cultural assessment.

This is in tune with the humanistic tradition of literature and drama. Drama in particular has always raised crucial societal issues for 'public reflexivity'. Science has been a grand obsession of Western Civilization. In portraying scientific concerns; playwrights, directors, actors, actresses have to understand the unique way their society is affected by the advances in science and technology. J. Akalitis expressed this idea very well, 'Theatre must somehow be in touch with the culture - not only politically and socially but also technically - or people wouldn't be able to respond to it. It'll seems like a relic'.[48]

Since post-modern drama deals with a highly advanced scientific culture, it has unique features of its own. Science and technology has grown with the Western Civilization, therefore its deep impact can be discerned (in not only the techniques of theatre presentation but also in the new concepts of time, space, matter, human psyche) in post-modern Western performance. The multiplex method, observation of the self

as the other, intercultural images/symbols, use of surreal techniques to give depth to the concepts of time, space, matter, human psyche and an overriding sense of experimentation are a hallmark of the American avant-garde.

Since American society is highly scientific and experimental, these trends of the avant-garde would be absorbed by the mainstream culture in no time. This can have salutary effect too. For example, the American political powers - or 'the establishment', in the terminology of the counterculture, use science to evolve better techniques of destruction as well as selective construction. They interact 'inter-nationally' in order to create markets for scientific/technological products. The American counter-culture rejects the dehumanizing qualities of technocracy and interacts 'interculturally' by going to non-Western societies to experimentally study its cultural life in order to find ways of humanizing themselves and their society if possible. The mainstream American culture is interested in using the products of scientific activity. The counter-culture is interested in responding to the concepts of scientific activity and in trying to understand their effect on human consciousness.

In its search for 'communitas', the counter-culture could help to re-connect the world culturally and force the mainstream culture to take note of the humanistic nourishment this

interaction provides. To a certain extent, organizing events like Festival of India[50] is a manifestation of this absorption. If one goes by the predicting nature of the avant garde,[51] it has indicated that an intercultural, global world-view would humanize mankind.

American experimental theatre keenly assesses the role of science in the dehumanizing Western political set-up. As Roszak put it, '... the roots of the technocracy reach deep into our cultural past and are ultimately entangled in the scientific world-view of the Western tradition'.[51] Keeping this powerful view-point in mind, it would be important to exchange science-drama interculturally. It will help mankind to give a creative impetus to scientific pursuit and its political application.

Synopsis of Dead Endkids
since will 25 pages (175 - 200)
mostly a reproduction of large
chunks of the text, with occasional
quote & comment.

## NOTES TO CHAPTER IV

1. The subtitle of this Chapter, invokes Fritzof Capra's study of mystical metaphors in ancient Asian religions and their correspondence with concepts of quantum physics. See Fritjof Capra, The Tao of Physics : An Exploration of The Parallels Between Modern Physics & Eastern Mysticism, (New York : Bantam Books, 1976). The word tandav refers to the dance of destruction Shiva undertakes according to Hindu mythology. See Veronica Ions, 'Hindu Mythology, Indian Mythology (London : Paul Hamlyn, 1967), pp.42-46. The subtitle refers to the celebratory as well as destructive aspects of frontier areas in science in general, and nuclear energy in particular.

2. Theodore Roszak, The Making of a Counter Culture (New York : Doubleday & Company, Inc. 1969), pp. 1-41. Also, see Chapter 2.3 of this thesis for preliminary comments on science and colonial ambition.

3. See Victor Turner, Dramas, Fields and Metaphors : Symbolic Action in Human Society (Ithaca and London : Cornell University Press, 1974), pp.14-15, for evolutionary potential of liminal forms. This is a crucial question in the light of the destructive potential of nuclear science. See Chapter 1.1 for introductory remarks on this issue.

4. Ralph Manheim & John Willett, eds, Brecht : Collected Plays, 5 (New York : Vintage Books, 1972), p.224.

5. Richard Schechner, 'The Decline and Fall of the (American) Avant-Garde', The End of Humanism (New York : Performing Arts Journal Publications, 1982), p.15.

6. See 'Theatre', New York, 19 Oct. 1981, p.111. Another source of records is New York On Stage, Theatre Development Fund, 1981.

7. James Schevill, Lovecraft's Follies (Chicago : The Swallow Press Inc. 1971).

8. James Schevill, Edison's Dream, Brown University, 1982.

9. 'Otrabanda','Stump Removal & Dr. Katakoff', TDR, 12, No.2, June 1976.

10. Eric Bentley, The Playwright As Thinker (New York : Harcourt, Brace & World, Inc. 1946), p.xix.

11. See Arthur Sainer, The Radical Theatre Notebook(New York : Avon Books, 1975), pp.11-16.

12. Schechner, End of Humanism, p.17.

13. Roszak, Counter Culture, pp. 5-7.

14. See Richard Schechner, 'From Ritual to Theatre and Back', Performative Circumstances From The Avant-Garde To Ramlila, (Calcutta : Seagull Books, 1983), p.147. Bertolt Brecht had used Asian theatre models. However, first-hand study of Asian theatre gained momentum from Grotowski onwards.

15. Right from Grotowski's deep study of Kathakali to Richard Schechner's study of Ramlila and Peter Brook's famous production, Mahabharata, we find this desire. For detailed discussion of this tendency see Christopher Innes, Holy Theatre : Ritual and the Avant-Garde (Cambridge : Cambridge University Press, 1981).

16. Schechner, Avant Garde To Ramlila, p.153. See Chapter 5,3 for understanding this trend in the Indian context.

17. Theodore Shank, American Alternative Theatre (New York : Grove Press, Inc. 1982), p.4.

18. Richard Palmer, 'Toward a Postmodern Hermeneutics of Performance', in Performance in Postmodern Culture, eds Michel Benamou & Charles Caramello (Madison, Wisconsin : Coda Press, Inc, 1977), p.30.

19. Schechner, End of Humanism, pp. 95-106.

20. Ibid, p.23.

21. Quoted in Kate Davy, Richard Foreman : Plays And Manifestos, (New York : New York University Press, 1976), p.1.

22. Richard Foreman, 'How I Write My (Self : Plays)', Drama Review, 21 (Nov. 1981), p.21.

23. Schechner, End of Humanism, p.99.

24. V. Rydnik, The ABC's of Quantum Mechanics (Moscow : Peace Publishers, 1960), pp. 229-286.

25. Kate Davy, Richard Foreman, p.1.

26. Florence A. Falk, Physics and the Theatre : Richard Foreman's Particle Theory, ETJ, (Oct. 1977), pp. 397-398.

27. Quoted in Robert W. Corrigan, The Theatre In Search of A Fix (New York : Delacorte Press, 1973), p.81.

28. Robert Wilson And Philip Glass, Einstein on the Beach (New York : The Byrd Hoffman Foundation, 1976).

29. Ross Wetzsteon, "Mounting 'Einstein' : There's No Business Like The Avant-Garde Business", Village Voice, 6 Dec. 1976.

30. John Rockwell, 'Robert Wilson's Five-Hour Operatic Dream', New York Times, 1 Aug. 1976.

31. Maxime de la Falaise, 'Einstein at the Met', Interview, Feb. 1977, p.27.

32. Ibid, p.30.

33. F. Joseph Spieler, Adrift Among Images : A review of Einstein on the Beach, Harper's,March 1977.

34. JoAnne Akalitis, Dead End Kids : A History of Nuclear Power (Unpublished play, courtesy Artservices, New York, 1981) Subsequent references are made to this script. While quoting the first two pages, the words Image 1, Image 2, etc. have been added for clarification.

35. Schechner, End of Humanism, p.106.

36. David Sterritt, 'The History of Nuclear Power - on the Stage?', The Christian Science Monitor, 3 Dec. 1980.

37. Elinor, Fuchs, 'Too Late For Kidding', The Soho News, 19 Nov. 1980.

38. Joel Schecter, Play on bomb booms, In These Times, 17-23 Dec. 1980, p.21.

39. See Roszak, Counter Culture, pp. 124-154 for detailed discussion of the impact of Hindu thought and symbolization on counter-culture.

40. This is a significant comment, further endorsing and at the same time indicting the link between science and power.

41. Samuel Beckett, Waiting For Godot (London : Faber and Faber, 1956), pp. 42-45. See Lucky's speech in particular.

42. See Chapters 2.2, and 3.4 for discussion of Nature as woman and scientific activity as a male-dominated enterprise. In Kate Millet's words, '... our society, like all other historical civilizations, is a patriarchy. The fact is evident at once if one recalls that the military, industry, technology, universities, science, political office, and finance - in short, every avenue of power within the society, including the coercive force of the police, is entirely in male hands'. Kate Millet, 'Theory of Sexual Politics', Sexual Politics (New York : Ballantine Books, 1969), pp. 33-34.

43. Merle Ginsberg, 'Dead End Kids', Nukes Were Never So Much Fun', The Villager, 20 Nov. 1980.

44. David Sterritt, Here's a jaunty stage troupe in search of big themes, The Christian Science Monitor, 6 Jan. 1981.

45. Peter Zeisler, 'Director's Note', Toward Expanding Horizons and Exploring Our Art, (New York : Theatre Communications Group, Inc. 1980), p.4.

46. C.P. Snow : The Two Cultures : And A Second Look (London : Cambridge University Press, 1964).

47. J. Robert Oppenheimer, The Open Mind, (New York : Simon and Schuster, 1960).

48. David Sterritt, Big Themes, The Christian Science Monitor, 6 Jan. 1981.

49. Victor Turner, 'Liminality and Communitas', The Ritual Process : Structure And Anti-structure (Ithaca, New York : Cornell University Press, 1977), pp. 94-97. Also see Chapter 1.1 for preliminary discussion.

50. Festival of India 1985-86 (American Institute of Indian Studies Committee on Performing Arts for the Festival of India, 1986). The brochure lists performance items like Krishnattam, Kuchipudi, Langas and Manghaniyars. However, modern performance pieces are conspicuous by their absence. The great interest in traditional and folk theatres of India is a result of pionerring work done by avant-garde theatre practitioners who went to other cultures with anthropological zeal. This zeal should now be directed towards global survival issues in order to make theatre a powerful weapon of human awakening.

51. Roszak, Counter Culture, p.7.