

Virtual Reality IN THE THEATRE

NEW QUESTIONS ABOUT TIME AND SPACE

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On April 18, 1995, *The Adding Machine, A Virtual Reality Project* opened at The University Theatre on the campus of the University of Kansas, in Lawrence, Kansas. The production combined live actors and an established script interacting with computer generated virtual reality environments, stereoscopic slide projection, and live video projection in real time. The production represented the culmination of approximately three years of research into the possibilities and combinations of Virtual Reality (VR) and live theatre by Mark Reaney, the designer and technologist of *The Adding Machine*. Ron Willis, the director; and a cast and crew of KU Theatre and Film Department students collaborated with Reaney to bring the production to the stage.

An acknowledged leader in the field of computer applications in the United States theatre, Mark Reaney has been investigating the application of computer technology to live theatre since he came to the University of Kansas in 1987. His disciplined research has explored the profitable artistic links between computers and theatre and resulted in the production of *The Adding Machine*, which inevitably raised more questions than it answered. Truly experimental theatre pieces are supposed to do that. Of course the production illustrated that the performance experience would be greatly enhanced by more sophisticated hardware and technology. However, those deficiencies notwithstanding, the production raised a host of fascinating theoretical and aes-

thetic issues. Most interesting of these, I believe, are the questions that are raised relative to the current perceptions of space and time that are emerging in the theatrical world and a subsequent re-definition of the relationship of design to the performance.

A growing body of evidence suggests that perceptions of space and time in the theatre are shifting away from the commonly accepted view that is our direct inheritance from Appia and Craig. The view of space and time espoused by these two revolutionaries at the end of the nineteenth century held that space on stage needed to be created sculpturally. Rather than space being represented in a pictorial fashion, as was the tradition of design in the theatre up to this time, Craig and Appia insisted that space on the stage needed to be created through actual three dimensional environments, inhabited by three dimensional actors, and revealed by three dimensional light. In addition, changes in the stage space generally occurred, they believed, in the normal sequence of linear time. Their views conditioned the revolution in design and production that came to be known as "The New Stagecraft" in the United States and formed the basis for a hundred-year exploration of three dimensionality, volume, sculpture, and linear sequence in the European and American Theatre. The Scenographic Revolution of the 50s and 60s and the bold experiments in Action Design in the 70s and 80s are in the mainstream of this thinking and a direct outgrowth of the pioneering work of Appia and Craig.

However, beginning in the 1970s new, parallel perceptions of space and time began to surface in the theatre. These views, underpinned by theories of relativity, were primarily created by the increasing domination of world visual discourse by television and motion pictures. The advent of MTV in the 80s and its subsequent worldwide spread created a whole new vocabulary of visual expression in the popular culture. And when that vocabulary entered the theatre it occasioned a shift in accepted standards of visual presentation. This shift, as I see it, is towards a playing space that is narrower, shallower, flatter, and longer in dimension and in which are exhibited through various technical means (silhouettes or gobos from traditional lighting instruments, motion picture sequences, still projections, VR constructions) patterns, two dimensional graphic material, photographs, moving images, or complex three dimensional illusions of space that are projected onto two dimensional screens and sometimes, as is the case with VR, require a mediating element, polarized glasses, to make the projected image seem three dimensional.

For a generation living in a relativistic age whose spatial perceptions have been conditioned more by television and motion pictures than by any other form, this is a normal and natural way of encountering and apprehending space and time. It is, in its own way, a return to a Medieval sense of space and time, especially in the use of discontinuous space and the representation of the same figure or object simultaneously occupying more than one location and in more than one attitude. For our contemporary generation, a performer standing in front of a flat surface on which are projected still or moving images representing physical places, objects, emotional states of being, psychological manifestations, or any hybrid combination of the above in flagrant violation of previously accepted norms of spatial logic and linear sequence is a "natural" way to view the world. It recalls to my mind Robert Edmond Jones' prophetic comments on the "New Theatre" he foresaw.

The new drama will display, not only action, but the thought which prompts the action: not only the deed, but the emotion behind the deed. We shall see a continuous play and interplay between outward action and interior motive—the warp and woof of a new fabric. And for the first time in the history of the drama we shall see ourselves presented in our new wholeness, which we are only just beginning to understand.

The new drama—I might borrow a current expression and call it the "two-way" drama—will be presented on what I might call in turn a "two-way" stage. Objective experience will be interpreted by flesh-and-blood actors appearing on a stage which will resemble more or less closely the realistic stage we are familiar with today. But above and behind and around this stage a motion picture screen will be erected, and on it are thrown the shadow-selves of the characters of the drama, living and moving as thoughts and emotions live and move. Our attention is focused, now on the stage, now on the screen, now on both stage and screen, as the drama dwells upon outward or inward experience, or upon outward and inward experience at the same time...¹

Clearly Jones' vision was that of a complete fusion of film and still pro-

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jection with live theatre.

Indeed, there are many manifestations of his idea now visible in world theatre. In the United States, individuals and groups such as Jerome Serlin, John Jesurun, Robert Wilson, Lauri Anderson, Ping Chong, the Wooster Group, Mabou Mines, and George Coates² have exploited the use of still projections and/or film or television in theatrical productions. The example of Laterna Magika in Prague is famous the world over for its pioneering work in the fusion of live action and the motion picture. But the work of all of these groups and individuals also exposes the one great difficulty associated with this kind of integration.

In these presentations, all the still, film, or television images are prerecorded and cannot change according to the dynamics of the live performance. At some point the

still images, film, or video tape prepared for the performance are fixed in number or length and after painstaking integration with the live action the performance is set. The time of the performance is then governed by the speed of the film or video projector or the mechanism that changes the still projections, and the live performance must match the drive speed of the projection mechanisms or the performance is flawed. Further, not only is the time of the production fixed, but the individual images cannot be manipulated or changed according to the dynamics of performance. Full integration of the images into the performance, in the sense that the images can be made responsive to the dynamics of individual performance, is not possible.

Full integration of environment into action is the ultimate aim of all stage design, and the search for this ideal has taken many forms. An open air theatre that celebrated the commonly held knowledge of a society in a communal celebration seemed to provide the full integration of environment and action at the beginnings of theatre. This form of theatre held sway for approximately 2000 years—from the Greeks to Shakespeare. This view of the theatre was supplanted, in the Renaissance when the theatre moved indoors to stay, by the miraculous constructions of artificial perspective. The Renaissance view created a revolution in the perceptual process and seemed to fully integrate the environment into the action for 500 years in the European and American theatre. It, in turn, was supplanted by the Realistic Revolution in art which threw the theatre into 100 years of painstaking construction of three dimensional environments and the development of elaborate atmospheric and illusionistic machinery. The Realistic view of the perceptual process has held sway up until the present day. While the beginnings of this revolution were devoted to the production of Realism or Naturalism, Appia and Craig managed to deflect a small portion of the energy towards more metaphorical and symbolic ends. (I must note here, sadly, that even though Appia and Craig were able to do this, the popularity of Realism and Naturalism continues, at least in the United States, unfazed by our current discussion, right through the present day. It cannot be stopped.) The "Scenographic Revolution" was the continuation of the work of Appia and Craig and married the ever more complex 20th century technology into the creation of three dimensional, kinetic, atmospheric, and illusionistic environments. And this was seen, for a while, as being the answer to the problem of the full integration of the environment with the action.

In 1962, as he was approaching the most productive period in his career, Josef Svoboda outlined the aims of the theory of scenography he was developing, along with others, when he noted, "Modern directional

methods call for an open, free stage; it can't allow itself to be bound by a static ground plan; the setting has to become adaptable to the action without strain and instantly."³ and later on, around 1970, "I don't want a static picture, but something that evolves, that has movement, not necessarily physical movement, of course, but a setting that is dynamic, capable of expressing changing relationships, feelings, moods, perhaps only by lighting, during the course of the action."⁴

Seen from the perspective of the heady days of the 60s and 70s when the world was more stable and we were all more idealistic, much younger, and much richer, Svoboda's comments inspired a generation to apply all the latest in contemporary technology to the problem of integrating the environment into the action. His caveat of 1970, "...not necessarily physical movement, of course..." can also now be seen as prophetic given the realities of the world following the world-wide recession created by the OPEC induced jump in oil prices in the mid-70s.

But the advances of this "Classic Scenography", as I would call it, could not be sustained because of the fantastic cost that came to be associated with its production. The recession of the 1970s coupled with a growing dissatisfaction with the increasingly complex atmospheric and illusionistic devices of this Scenography (which we now realize finally treated the actor like a prop) sparked another revolution. This revolution, called Action Design, sought to empty out the theatre of all the complex illusionistic and atmospheric claptrap and reinstate a technologically simple but psychologically and metaphorically rich environment that focused on the work of the actor. This revolution was led by Jaroslav Malina and his contemporaries in Czechoslovakia and while not exhausted by any means, is simply the current manifestation of the desire to fully integrate the environment with the performance. However, I think we all know that even Action Design is not going to be the

final answer to the search for full integration. And that is because we now know two things about the search.

One, we have learned now that no actual three dimensional construction of the stage can really achieve a full and total integration with the action. The realities of space, time and gravity prohibit it. Actual, three dimensional objects cannot move fast enough to respond to the thoughts of the playwrights. Actual objects can't get on or off stage fast enough. While the techniques of "Classic Scenography" might be well suited to opening up the drama of the past to new perceptions, they are not capable of dealing adequately with contemporary techniques in playwriting. One need only glance briefly through the contemporary scripts that are being offered for production now to realize how thoroughly our playwrights' visions have been shaped by the familiar techniques of television and motion pictures. No, the full integration of the environment with the action in contemporary drama will have to capitalize on a new visual vocabulary and a new technology. I would suggest that this new visual vocabulary is the new sense of space and time that is emerging in the theatre and the new technology which will unlock it is Virtual Reality. VR allows us to manipulate the environment, in real time, to respond to the changing dynamics of performance. It allows us, for the first time, to organize the physical dimensions of the perceived performance space (and I say "perceived" because in VR it is not an actual three dimensional space that is inhabited by a three dimensional actor moving in three dimensional light) so as to be instantaneously responsive to the dynamics of the action and the performance. Full development of the ideas of VR and more sophisticated technology will lead to the establishment of a complete design aesthetic relative to VR. This aesthetic, I believe, will free VR images from depictions of place, the conventional role that scenery has played in the theatre to date, and will use

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VR to fully explore the psychological dimension of the drama and its relationship to character, place, time, and action.

Two, we have learned that the rules of the game—what we mean by full integration, what we believe it to be—are defined anew by each era or generation. Therefore, I am not suggesting that VR is in any way a final solution. VR is just another step in the journey. Just as the visual vocabulary of artificial perspective provided the integrative link for the perceptions of the Renaissance, so the visual vocabulary of VR will provide the integrative link that will make our twenty-first century perceptions possible. What these perceptions might be, I would also suggest, were hinted at by Robert Edmond Jones when he developed his vision of a New Theatre.

Jones' vision was to be a technological *and* philosophical synthesis that would give dramatic expression to the condition of contemporary man. It is this condition, this realization of the relationship between our outer and inner lives, that Jones sought to reconcile with his new drama and his new theatre. This reconciliation, as Jones defined it from his prophetic and humanistic perspective, is actually a process of healing. At the end of his essay he noted:

*For it is not our outer life alone that has meaning for us today, nor our inner life alone, but the living relationship between our outer life and our inner life. And it is precisely this living relationship that is the subject of the new drama. In life as we live it our inner experience runs parallel to our outer experience but seldom meets it. The two varieties of experience are rarely fused. But the new drama will present to us, not only our life in relation to the world we live in, but our relation to our own inner dream. Here is it promise. Seeing it—bearing it—experiencing it we can become whole once more.*⁵

Virtual Reality, I believe, is the contemporary technique that will allow us to unlock this vision further. *The Adding Machine: A Virtual Reality Project* is, I believe, the first step in that direction. ♦

Delbert Uurub is a Contributing Editor of TD&T. For his five-part series of articles on Action Design, in 1992 he was awarded the Greggs Award for Outstanding Writing in TD&T.

NOTES

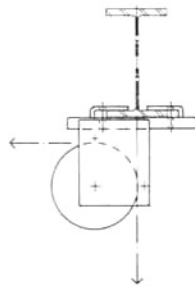
1. Jones, Robert Edmond, "The Drama Of The Future," ms. Beinecke Library, Yale University; 19-22. (For a complete discussion of Jones' vision of a "New Theatre" see: Uurub, Delbert, "The New Theatre Of Robert Edmond Jones", *TD&T*, Winter 1988: 8-11.)
2. The early pioneering work of The George Coates Performance Works in this area offered an experience that was like Virtual Reality. In their own words it was, "Virtual, Virtual Reality". The experience seemed to be like virtual reality but did not use actual Virtual Reality technology, nor did the audience have to wear any mediating device, such as polarized glasses or a head mounted display, in order to view the images. In his recent work, such as *Better Bad News*, polarized glasses are used by the audience to suspend themselves in, as Coates calls it, "a total immersive surround". (See "American Theatre", October 1995, 32).
3. Burian, Jarka, *The Scenography Of Josef Svoboda*, (Middletown, CT: Wesleyan University Press, 1971): 29
4. Burian, 27

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