A paradigm shift in the fields of art, entertainment and publishing is taking place. Non-linear writing, interactive storytelling, immersive environments and virtual reality are words that are beginning to seep into our everyday vocabulary. These words, once found only in the likes of science fiction programs such as Star Trek, are quickly becoming part of daily life with the advent of computer-based multimedia production tools and products known as "New Media." This latter term is difficult to define because it encompasses a constantly growing set of new technologies and ideas. Nevertheless, an important theme in "New Media" is the convergence of video, audio, text and interactivity in new and innovative ways.

Artists are forging a new medium with groundbreaking digital technologies, combining various art forms to create innovative interactive experiences. What drove these artists to depart from the conventional disciplines to use computer-based technology? From such diverse artistic backgrounds as painting, dance, music, bookmaking and writing, artists Mark Amerika, Toni Dove, Tennessee Rice Dixon and the dance theater company Troika Ranch have incorporated current computer technology into their work to enhance their artistic visions--pushing the boundaries of their respective disciplines into the medium now coined, "New Media."

Writer Mark Amerika began exploring the possibilities of the internet with the Alt-X Online Network (www.altx.com), a literary website he developed in 1993. Amerika also uses computer technology to investigate new forms of writing. In 2000, Amerika's most acclaimed internet art project Grammatron (www.grammatron.com) was one of the first websites to be included in the Whitney Biennial. When Amerika launched Alt-X, he had been publishing a journal called Black Ice and found the distribution of alternative books becoming increasingly difficult. He asserts: "I wanted to find an alternative distribution model and locate a preferably wider, larger audience. So I started experimenting with the internet as a network publishing model and not only were we able to succeed in finding that audience, [but] we started having a pretty strong influence on the development of internet culture because we were one of the first content sites on the internet."

With the development of Alt-X, Amerika also began to see that publishing web pages containing music, images and hypertext links, enabled the site to become an exhibition medium as well. His internet art project Grammatron (www.grammatron.com) began as his third novel. After forty pages into writing the book, he realized that the web was a more appropriate medium for this type of endeavor. "I was interested in investigating the potential of multi or non-linear writing. I thought that the standard forms of writing, like the novel, were getting kind of old and boring." He uses hypertext to explore this form of literary work. Hypertext, usually associated with the web, enables the reader to follow associative paths through a collection of textual documents. Grammatron is a hypertext story about a character named Abe Golam who experiences information overload in an internet world.

The Grammatron project took four years to complete and was released in June 1997. According to Amerika, production on Grammatron began on "April 3, 1993, approximately one or two weeks before the release of Mosaic, the first graphical user interface browser like Netscape, or Microsoft Explorer. I think that it is significant because it goes to show that a number of us were
actually trying to envision what internet art could be like if the technology was there. As a consequence, we had to wait for the technology to catch up with our ideas and our visions."

Artist Toni Dove finds "New Media" attractive because she doesn't have the artistic rules imposed on her by more traditional art mediums. Dove creates interactive video environments. One of her goals is to reexamine narratives and develop a new language that allows a viewer to participate in the construction of the story using a computer-based interactive environment. At first she was resistant to working in an interactive format because she felt it might be too limiting. In 1993, she agreed to collaborate with British playwright Michael McKenzie and went to the Banff Center for the Arts in Canada to create Archeology of a Mother Tongue, a virtual reality murder mystery installation. "It was a turning point for me because it was the first time that I started working directly with interactive structures. And I got very intrigued with the way in which media could be responsive and how you could use your body to connect with images on a screen." According to Dove, Archeology of a Mother Tongue significantly changed her work practice. "It was the beginning of a way of working that was taking me out of the more traditional kind of 19th century artist in a garret model, which I had been doing before and brought me more into the realm of collaborative practice."

[ILLUSTRATION OMITTED]

In 1997, Dove completed Artificial Changelings, an interactive movie housed in an installation environment. The piece presents the story of a 19th century kleptomaniac who dreams of an encryption hacker in the future. Strategically placed sensors allow the viewer or agent to physically participate in the movie. The participant's movements may slow the video down or move it forward or backwards. The sound track is also responsive to different degrees of motion. Dove believes that this interaction creates "a connection between the viewer and the movie, which is very different from the kind of relationship one has with a regular film." Dove's interactive video environment disrupts traditional cinematic structure (beginning, middle, end), empowering viewers to assemble their own version of the story.

Dove is currently in production on the interactive movie Spectropia, a time travel drama set in the future and in 1931 after the stock market crash. The story is about Spectropia, a young woman in the future who has created a machine that scans garbage and creates virtual realities. When her machine malfunctions she finds herself in 1931 in the body of Verna DeMott, a sophisticated older woman and amateur sleuth. Throughout the story, viewers are able to interact with the characters, navigate through cinematic spaces, move a character's body, and alter and create the soundtrack. "Sally or the Bubble Burst" is a scene in Spectropia where the participant uses a combination of mouse rollover and microphone to talk with Sally Rand, a virtual recreation of the burlesque star, in an interactive conversation that incorporates speech recognition and synthesis. The participant can sing to Sally to create and transform a bubble dance, move Sally's body with the mouse and talk to objects in Sally's dressing room that respond with song and spoken word. According to Dove, Sally has specific narrative goals within the story "as opposed to just being an interactive experience."

Tennessee Rice Dixon also uses digital media to create new kinds of storytelling. Dixon began as a bookmaker, collaging text and image. She considers writing a form that includes "notation,
drawing, recorded elements, any kind of series of gestures that is readable, transcribable." Her surreal-like collaged imagery incorporates discarded materials--things she has found in the trash, cut-out words from books etc. She feels that juxtaposing these elements in collage form "reflects the complexity of this world" because of the over-whelming amount of information we are bombarded with everyday. Like Dove, Dixon first resisted the idea of exploring computer-based multimedia and collaboration, but with the persistence of then future collaborator Jim Gasperini, she decided to give it a try. She found the collaboration and project to be both rewarding and challenging. In reflection she felt that her bookmaking, which consisted of a series of images and texts, led to a natural transition into moving images. Completed in 1994, Scrutiny in the Great Round was Dixon's introduction to multimedia. The project took two years to complete. The CD-Rom Scrutiny in the Great Round is based on her 1991 artist book under the same name. Dixon describes the project as a slow-moving interactive collage about birth and marriage that employs imagery of artifacts and symbols from various cultures throughout history, as well as sound and poetry. Her choice of cultural symbols reflects her innate drive to explore the common thread of spirituality and basic human drives that run concurrently through all cultures and times. Kathy Brew, independent curator, educator and producer points out that with Scrutiny in the Great Round, viewers create "their own narrative from within the structure that the artist has created."

A current project by Dixon that began in 1994, Backtide at the Altar, has been a long project in the making. It is a multimedia work created for performance as well as an interactive CD. Like Scrutiny in the Great Round, it is also very "collage intensive." Texts and images are collaged together, and then sometimes animated. She uses cut-out words found from discarded materials and then collages them to create meaning. The piece responds to mouse movements, as well as light and sound levels. A bright light would therefore create a different reaction than a low light. One of the unique elements about the project is that it is time dependent. "What you see depends on the time of day. Participating in the movie at ten in the evening is a different experience than participating in it at two in the morning--the characters, the actual scenes and events that happen, are different."

The Troika Ranch company transcends traditional music composition in dance performance using computer technology. It is a dance theater company that combines dance, theater, interactive computer controlled media, and sometimes elements such as robotics set pieces. Troika Ranch's artistic directors Mark Coniglio and Dawn Stoppiello began collaborating while undergraduates at the California Institute of Arts. Stoppiello oversees the choreography while Coniglio develops the music and technological aspects of the performance. Coniglio became interested in computer-based interactive performance tools after seeing his professor use similar tools, eventually incorporating them into his own work. "My teacher, Morton Subotnick, had created a piece called Hungers in which a singer was moving with interactively controlled sensors where she controlled samples of her voice. And as soon as I saw that, I knew I had to find a way to put that on the body of the dancer. And in response to that I created the MidiDancer System, which allowed me to take the movements of dancers and use them to make music." According to dancer Michou Szabo. "Working with the sensor device adds a whole other layer to the performance experience. You're asked to suddenly be more than a dancer. You're a musician. In [Troika Ranch's performance] Chemical Wedding of Christian Rosenkreutz, I wore a sensor on my wrist that controlled wind and video, and it was like a magical experience for me to be in control of that scene."
Coniglio sees himself working within the tradition of a number of American experimental composers because he builds his own instruments. "These instruments just happen to be electronic sensors, but in fact when I put them on the bodies of the dancers, the way in which we approach working with them is that of a musician who has to learn how to play an instrument."

Dancer Michou Szabo admits, "It took me a while to feel comfortable working with the sensors because you are not only thinking about the movements that you're doing but you're also listening to the sounds that you're creating or you're watching a video screen to see what's happening on the video. And you have to know how much movement you need to create the effect that you're trying to make. It's like playing an instrument and that takes practice and it takes time."

[ILLUSTRATION OMITTED]

In 1989 when Coniglio and Stoppiello first started working with the MidiDancer, they both agreed that they were going to work with the device for at least ten years. As Stoppiello avows, "we couldn't possibly know anything about it any sooner than that. And in fact we've exceeded that limit so far and we're still not done experimenting with it."

These are a few of the artists who have pioneered computer-based interactive art that is currently coined "New Media." It is interesting to look back at an important development in the history of bookmaking, which metaphorically applies to the current state of computer based interactive work. Janet H. Murray points out in her book, Hamlet on the Holodeck, "In 1455, Guttenberg invented the printing press--but not the book as we know it. Books printed before 1501 are called incunabula; the word is derived from Latin for swaddling clothes and used to indicate that these books are the work of a technology still in its infancy. It took fifty years of experimentation and more to establish such conventions as legible typefaces and proof sheet corrections; page numbering and paragraphing; and title pages, prefaces, and chapter divisions, which together made the published book a coherent means of communication."

Like early developments in bookmaking, computer-based interactive work is building its own vocabulary and housing structure. As Toni Dove states, "The field is somewhere between the zoetrope and where Edison electrocuted that elephant in the early days of film. Until something is standardized in a way that will be stable enough to create production apparatus, funding structures, architectures for presentation and distribution, then everything becomes either temporary or eccentric in terms of the way that you work."

The question is no longer whether computer-based interactive art is a valid artistic tool for expression or not. Rather, it is how will artists utilize these exciting new technologies to create innovative and thought-provoking artistic experiences.

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